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Patient Satisfaction in the Emergency Department
An Empirical Investigation into its Measurement, Antecedents, and Consequences

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Abbreviations

ACEP	American College of Emergency Physicians
ACSI	American Customer Satisfaction Index
AHRQ	Agency for Healthcare Research and Quality
AIC	Akaike Information Criterion
BEPSS	Brief Emergency Department Patient Satisfaction Scale
BIC	Bayesian Information Criterion
CEFIT	Care Experience Feedback Improvement Tool
CEISUC	Centro de Estudos e Investigação em Saude da Universidade de Coimbra
CODU	Centros de Orientação de Doentes Urgentes
Cth	Consulta a Tempo e Horas
ECSI	European Customer Satisfaction Index
ED	Emergency Department
EFA	Exploratory Factor Analysis
EM	Emergency Medicine
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HRE	Health Regulatory Entity
HSFX	Hospital de São Francisco Xavier
IAQH-UA	Instrumentos de Avaliacao da Qualidade Hospitalar – Urgencias Adultos
INEM	Instituto Nacional de Emergência Médica
IOM	Institute of Medicine
MET	Medical Emergency Teams
NCQA	National Committee for Quality Assurance
NHS	National Health Service
NSI	National Statistics Institute
PEQ	Patient Experience Questionnaire
PHS	Portuguese Health system
POCT	Point-of-Care Testing
PSI	Patient Satisfaction Instrument
PSQ	Patient Satisfaction Questionnaire
QPP	Quality from the Patients' Perspective
RAND	Research and Development
SEM	Structural Equation Modeling
SERVQUAL	Service Quality
SIEM	Sistema Integrado de Emergência Médica
SNS	Serviço Nacional de Saúde

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Abstract

The main purpose of this research is to investigate the relationships between patient satisfaction, its antecedents (including global perceptions, perceived quality dimensions, and expectations), and its impact on consequences (including confidence/trust, payment perception, and complaints), as well as defining and testing a conceptual model for patient satisfaction and related constructs in the context of an emergency department (ED).

The key focus of this study is thus to define key factors promoting patient satisfaction in the ED which, in turn, influence a set of performance factors (such as payment perception, confidence/trust, and complaints) that can be used for improved resource allocation and the definition of priorities by hospital and health system managers. A further focus of the study is the investigation of the potential moderating effect of a set of controlling factors (including specific patients' characteristics, psychological state, social and demographic attributes, and the state of health/health status) on the relationships between patient satisfaction, its antecedents, and consequences.

First, an exploratory phase of research was necessary in order to examine the nature of EDs and identify the major gaps that could be addressed in the quantitative phase of research. Thus, after finishing the analysis of the qualitative phase of research, we proceeded develop the questionnaire. As a solid base for our conceptual model and the questionnaire, we considered the methodology used in the Índice Nacional de Satisfação do Cliente (ECSI-Portugal), which is based on structural equation modelling (SEM) with latent variables, along with the American Customer Satisfaction Index (ACSI) model, which consists of indices for drivers or causes of satisfaction (antecedents), satisfaction, and outcomes of satisfaction (consequences) with cause-and-effect relationships. In developing the questionnaire, we also took into account and reviewed the Instrumentos de Avaliação da Qualidade Hospitalar – Urgências Adultos (IAQH-UA), the fourth National Health Interview Survey (Inquérito Nacional de Saúde), as well as the survey used to investigate aging processes in Portugal. Our questionnaire was adapted, and other questions were added that enabled us to identify important issues according to our conceptual model. The appropriateness of the questionnaire was tested by administering the instrument to a small subset of the study's population by launching a pilot survey with 20 interviewees.

The investigation period for the study was January 1 through December 31, 2016. Data collection was performed from May 18, 2017 through November 30, 2017 and took place in the public hospital under investigation in Lisbon, Portugal. We chose the sample distribution with a 5% margin of error and a 95% confidence interval. The total sample size was 382 patients. The questionnaire was sent either by mail or e-mail, depending on the respondent's preference. The data analysis included several steps: descriptive statistics; correlation coefficients; ANOVA and T-test; multiple regression analysis; stepwise multiple linear regression analysis; and SEM (path analysis).

Our results reveal that meeting expectations and the overall satisfaction with doctors are the main patient satisfaction antecedents that primarily contribute to understanding the level of confidence/trust in the ED and that influence it as the main patient satisfaction consequence, both directly and indirectly. Even though there are more variables that influence confidence/trust in the ED through the perceived

quality of healthcare rather than through satisfaction, we observe the strongest contribution in the mediation model through satisfaction, which shows its dominant role over the perceived quality of healthcare. In turn, controlling factors do not have a strong, significant impact on the relationship between patient satisfaction, its antecedents, and consequences.

In our mediation model, we reveal that overall satisfaction with doctors can better explain confidence/trust in the ED through perceived quality of healthcare; however, meeting expectations can better explain confidence/trust in the ED through satisfaction.

Trust and expectations play an important role in the doctor-patient relationship. Several researchers have noted that trust was more complex than expectations, as the older adults could be satisfied but not trust providers, or they could trust providers but not be satisfied. Other researchers have also emphasised the fact that patients may be satisfied with the visit but may not have a sense of trust and vice versa. In our research, we considered confidence/trust to be an outcome; thus, our results showed that a certain set of variables (overall satisfaction with doctors and meeting expectations) can bypass satisfaction and perceived quality of healthcare and have a direct influence on confidence/trust, while other sets of variables (qualitative perceived waiting time for triage and information about possible delays) cannot bypass satisfaction; still others (qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests, privacy, and accessibility and availability) cannot bypass perceived quality of healthcare without any chance of direct influence on confidence/trust.

By conceptualising patient satisfaction in the ED context based on our results, we may say that the perceived quality of healthcare and satisfaction are integral to each other. Further, satisfaction and perceived quality of healthcare play an important but distinct mediating role in strengthening the effect of patient satisfaction antecedents on patient satisfaction consequences, where the strongest patient satisfaction antecedents (the overall level of satisfaction with doctors and meeting patients' expectations) and the main patient satisfaction consequence (confidence/trust in the ED) form a connecting link between two concepts (satisfaction and the perceived quality of healthcare).

Hence, this analysis demonstrates the complexity of the research topic under discussion and the importance of investigating it further.

Keywords: patient satisfaction; perceived quality of healthcare; emergency department; patient satisfaction antecedents; patient satisfaction consequences.

1. Introduction

Patient satisfaction is increasingly considered a central goal of healthcare organisations. Its measurement and management are important tools in understanding which service attributes are the most relevant from patients' point of view. The concept informs us of what patients want and what they need; consequently, it is vital for management and planning (Nguyen et al., 2002). It also takes into account the fact that healthcare consumers have changed their behaviour and demands (Bohmer, 2001). It has become evident for healthcare managers that patient satisfaction is an essential aspect of hospitals' success and plays an important role as a hospital performance indicator (Wrenn, 2007; Rundle-Thiele and Russell-Bennett, 2010).

In our research, we study patient satisfaction in the setting of the emergency department (ED). The ED frequently serves as a point of entry to the hospital, and a significant number of hospital admissions are made through this channel (Jensen and Kirkpatrick, 2010). A detail that should be taken into account when measuring patient satisfaction is the fact that healthcare services, and mainly those provided in the context of the ED, are not consumed on a regular basis, as happens with other services (such as telecommunication and banking). This strengthens the effect and memory of each service encounter (Shostack 1985). In this case, freedom of choice is an important issue. Sometimes, there is only one hospital in a specific geographical area, and in this situation, patients are restricted to a single provider. Even in situations with several hospitals operating in the same area, legal restrictions may limit patients' choice; further, competitive markets may have some limitations of choice, as the hospital may be chosen not by the patient but by a third party (e.g., the physician or the insurance provider; Goldstein, 2003). Therefore, perceptions about the ED should have a strong influence on the global perception and the image that the whole community creates about the hospital (Jensen and Kirkpatrick, 2010).

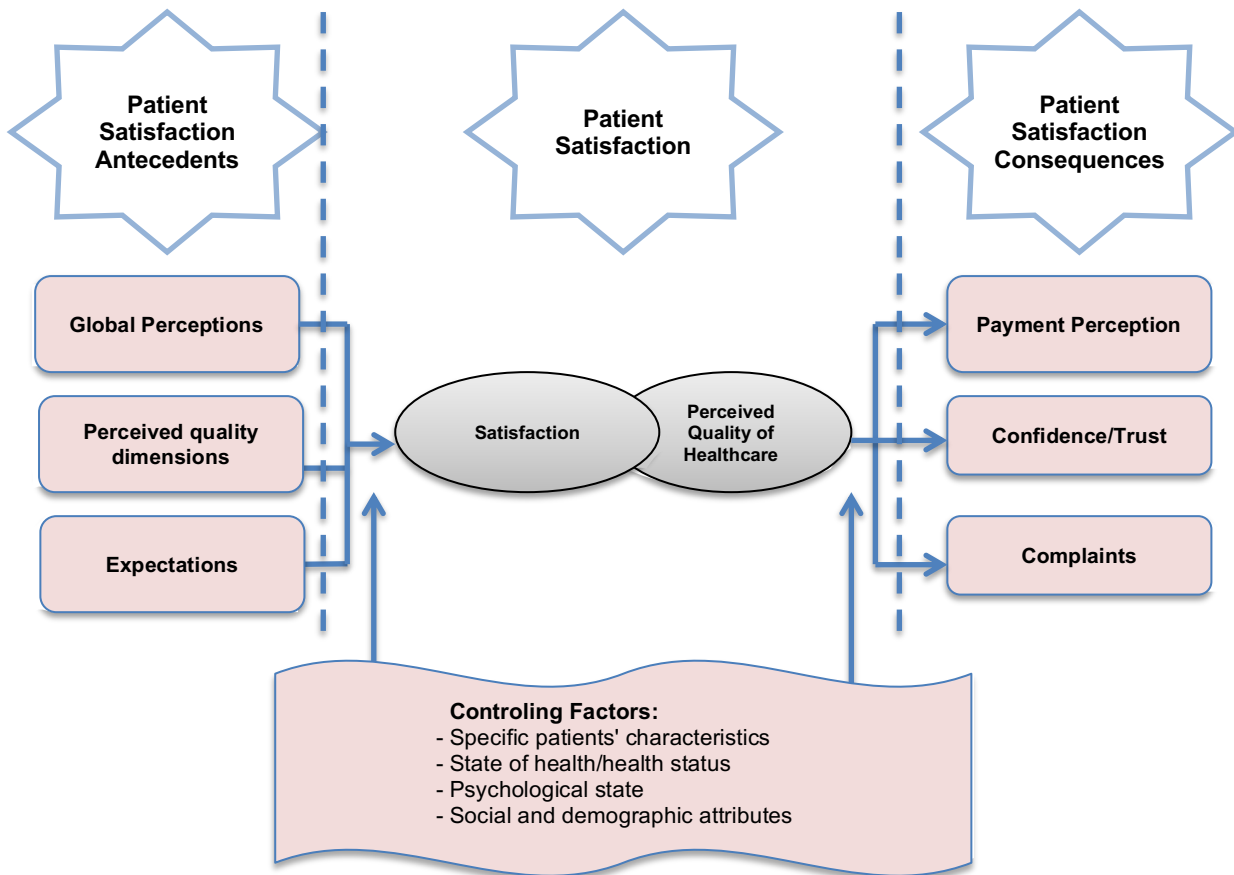
In the context of emergency care, satisfaction has been considered a central indicator that shows the links between patients' needs, expectations, and experience (Boudreaux, O'Hea, 2004). It has been stressed that the comparison of received services and expectations is one basis to form quality perceptions and, ultimately, assess patient satisfaction. This creates an additional challenge in ED services; it has been noted that, in this context, patient expectations are frequently not met (Taylor and Bengner, 2004). Boudreaux et al. (2004) have stressed that most existing ED patient satisfaction research shows significant methodological faults, leading to incorrect and contradictory results. This evidence points to the need for scientific research on the measurement and conceptualisation of patient satisfaction in EDs.

In spite of all the work done so far, there are still significant gaps in comprehending the factors that influence patient satisfaction. In Portugal, understanding patient satisfaction in the ED is even more relevant because Portugal is the European country with the highest number of ED visits per capita (Berchet, 2015), and it also has a high rate of non-urgent visits (Monitorização do SNS, 2016).

The purpose of this research is to investigate the relationships between patient satisfaction, its antecedents (including global perceptions, perceived quality dimensions, and expectations), and its impact on consequences (including confidence/trust, payment perception, and complaints), as well as defining and testing a conceptual model for patient satisfaction and related constructs in the context of the ED. A

literature review provides the basis for developing the conceptual research model presented in Diagram 1. The model consists of three main stages of the patient satisfaction chain: patient satisfaction antecedents, patient satisfaction, and patient satisfaction consequences, as well as a set of controlling variables (including specific patients' characteristics, psychological state, social and demographic attributes, and state of health/health status).

Diagram 1. Proposed model of patient satisfaction.



The focus of this study is thus to define key factors that promote patient satisfaction in the ED that, in turn, influence a set of performance factors (such as payment perception, confidence/trust, and complaints) that can be used for improved resource allocation and the definition of priorities by hospital and health system managers.

In this research, we also investigate the potential moderating effect of a set of controlling factors on the relationships between patient satisfaction, its antecedents, and consequences. Taken together, the data collection and extensive analysis of the data provide an empirical observation of the proposed relationships and empirical evidence regarding the accuracy and relevance of the proposed hypotheses.

Objectives:

- 1) to conceptualise patient satisfaction and to frame it in the context of proposed relationships;
- 2) to test the underlying conceptual model using proper measurement instruments;

- 3) to investigate and empirically test the potential relationships between patient satisfaction, its antecedents, and consequences, as proposed by the model;
- 4) to investigate and empirically test the moderating effect of controlling factors on the relationships between patient satisfaction, its antecedents, and consequences;
- 5) to investigate the relationship between objective data and participants' perceptions and link the results obtained from the questionnaire to patients' clinical records.

To our knowledge, this is the first model to integrate all of the proposed patient satisfaction antecedents and patient satisfaction consequences, along with the measurement of satisfaction. In addition, the approach includes perceived quality of healthcare as a part of satisfaction evaluation, which allows us to distinguish these two concepts. This is also the first attempt to combine dimensions such as complaints, payment perception, and confidence/trust, whose relationships and interactions with satisfaction/perceived quality of healthcare are largely unknown in the context of the ED.

This work's contribution also consists of controlling factors, including specific patients' characteristics, psychological state, social and demographic attributes, and the state of health/health status. Understanding the role of these factors as a possible moderator and to what extent satisfaction, its antecedents, and its consequences are contingent on these characteristics can help academics and managers identify different patient segments with specific needs and concerns.

Finally, this work produces innovative contributions to the conceptualisation of patient satisfaction itself, as this construct has not yet been clearly established in the ED framework. Further, the production of a fully tested conceptual model for patient satisfaction is of great value in the healthcare industry, as there is clearly an important gap to be addressed in the context of the ED.

In summary, the anticipated contribution of this research is expected to be theoretical, empirical, and practical. The theoretical contribution refers to insights into the development and meaning of the scientific area of patient satisfaction in the ED context, and to the development of the model of patient satisfaction. In fact, both the conceptualisation of patient satisfaction and the establishment of the relationships with potentially related constructs are open research questions in the framework of the ED. The empirical contribution refers to the development and testing of a conceptual model of the underlying constructs that tests their impacts. Finally, practical insights will provide hospital and health managers with the main factors that promote patient satisfaction, along with the main performance factors in the ED framework, and with the awareness of the actual organisational and social value of health quality services.

Research question

What are the key factors that promote patient satisfaction in the ED which, in turn, influence a set of performance factors that can be used for improved resource allocation and the definition of priorities by hospital and health system managers?

Statement of research

Meeting expectations, global perceptions, and perceived quality dimensions promotes patient satisfaction and thus generates a set of attitudes and behaviours with organisational and social value.

Hypotheses

H1: Meeting expectations, perceived quality dimensions, and global perceptions will have an indirect effect on a set of performance factors (such as payment perception, confidence/trust, and complaints) mediated by patient satisfaction.

H2: Controlling factors will influence the levels and relationships between patient satisfaction, its antecedents, and consequences.

Thus, we have identified a suitable measurement approach to test our conceptual model, which is described and presented in the following chapters. In the first chapter of our research, we clarify and distinguish between patient satisfaction and patient satisfaction in the ED, and we describe some specificities regarding emergency care in Portugal, where the research took place. In the second chapter, we present the methods section of the quantitative phase of research, in which we describe in details, the sampling procedure, and the questionnaire content. In subsequent chapters, we demonstrate a description of the results regarding our conceptual model of patient satisfaction, which finally leads to the study's conclusions.

2. General overview of the research topic

2.1 Patient satisfaction in the context of the quality of healthcare

Patient satisfaction is a dynamic process and an important indicator of the quality of healthcare (Mohan et al., 2010; Ng & Luk, 2019). The changeable surrounding environment, which includes technologies and human needs, influences patient satisfaction (Ng & Luk, 2019). Patient satisfaction is a complex notion influenced by complex factors, which create additional difficulties in measuring it (Ng & Luk, 2019; Alberto Sánchez-Piedra Francisco Javier Prado-Galbarro & Sarria, n.d.). It is measured through patient experiences with the healthcare system that allow researchers, industry professionals, and policymakers to identify problems and outline areas for improvement to ensure equity in access and the availability of care (Danielsen et al., 2007). Patient experience measures have been shown to be indicators of healthcare quality; at the same time, however, a common approach to defining ‘patient satisfaction’ is lacking (Manary et al., 2013).

Few studies have attempted to define patient satisfaction (Ng & Luk, 2019). Vuori (1987) has defined it as a critical element of quality healthcare, which justifies the importance of an obligatory measurement of patient satisfaction. Dawson (1989) continued to develop the concept of the consumerism of healthcare. The purpose, function, processes, and practice of healthcare are oriented towards patient needs and the desired well-being. In this respect, patient satisfaction both reflects and shapes the industry. In the analysis of patient understanding and awareness of medical care, Kenkel (1990) has referred to patients as consumers. Ng and Luk (2019) have emphasised several important attributes of patient satisfaction, such as accessibility and efficacy, provider attitude, and technical competence.

Taylor (1994) has distinguished a marketing function of healthcare in offering its service to potential consumers. Druss, Rosenheck, and Stolar (1999) have expanded the idea of the consumer nature of patient satisfaction, while Urden (2002) has reviewed the existing methods, instruments, and techniques for measurement. Given the evidence cited above, within a few decades, patient satisfaction became a crucial point for clinical, organisational, and legal consideration (Naidu, 2009; Baggott, Allsop, & Jones, 2014; etc.). In this respect, patient satisfaction is subject to monitoring and assessment on individual, community, and regional scales.

According to the definition provided by the Institute of Medicine (2001), healthcare quality is the degree to which health-related services ‘increase the likelihood of desired health outcomes’ and meet professional standards and accumulated clinical knowledge (n.p.). The National Committee for Quality Assurance (NCQA, n.d.) has summarised the most common definitions provided by national health organisations and prominent scholars, highlighting that quality care should necessarily be based on recent scientific and medical evidence, take each patient’s life into consideration, and aim to improve patients’ health and quality of life.

There is a clear understanding of what high-quality care should look like. The World Health Organisation (WHO, 2017) has summarised the main dimensions of excellent care, which are provided below:

- *Safety*. High-quality care is safe; that is, it delivers excellent services that do not jeopardise patients' health and well-being.
- *Effectiveness*. The services provided meet the requirements of evidence-based practice and are grounded in recent scientific research.
- *Timeliness*. Quality care is provided in time to prevent complications and achieve optimal outcomes.
- *Efficiency*. Quality care is provided using resources responsively and reasonably.
- *Equitability*. Delivering high-quality care means providing equal services to all patients irrespective of their socioeconomic, cultural, racial, ethnic, or other differences.
- *People-centredness*. Quality care respects the needs and interests of patients first.

As this description shows, quality care should meet all these requirements to generate positive patient experiences and high satisfaction.

While the WHO (2017) has provided properties from the providers' perspective, they should be distinguished from those patients seek or expect. AHRQ (2012) has argued that patients expect to receive services that will help them stay healthy, that is, treat or prevent illnesses. They also expect their health to improve after being treated or seeking support to manage chronic diseases. Finally, some patients seek at least some comfort and pain relief when their condition cannot be cured (AHRQ, 2012). It is important to realise that patients also value timeliness, effectiveness, safety, equitability, and other dimensions, but they perceive them from a broader perspective of satisfaction with services. More importantly, patients may assess quality of service differently depending on their individual characteristics (Grøndahl et al., 2011).

Since its invention, the Donabedian's structure-process-outcome algorithm has framed the measurement of healthcare quality. According to the industry's quality assurance, these three components are reciprocally connected, as an effective structure facilitates an effective process, which in turn contributes to the likeliness of a desired health outcome (Yesalis, Politzer, & Holt, 2012; Moore et al., 2015). Based on this algorithm, measurements of healthcare quality capture and assess the actual functionality of the healthcare system.

Given the complexity of the concept of patient satisfaction, which consists of multiple factors, the healthcare industry needs a careful investigation and account of the factors that shape patient expectations of high-quality care. While considering patient criteria for quality of care, the healthcare system can also inform quality perceptions by adjusting its formal processes and structures (Wilde et al., 1993). With a clear understanding of and response to patient needs, the system adopts a patient-centred model of care delivery, thus improving patient experience and perception (Wilde et al., 1993). Patient satisfaction is one of the key terms in patient-centredness (Garrett, 2019). A positive patient-centred care approach is associated with a higher satisfaction level, a reduced symptom burden, and a lower rate of referrals (Little et al., 2001). Patients' preferences and values constitute an important basis for management practice, which is likewise a crucial issue in patient-centredness (Garrett, 2019).

Thus, the quality of care is a vital construct of patient satisfaction, which requires special attention to foster a harmonious relationship between patients and healthcare providers. Even though patient satisfaction has been considered an indicator of the quality of healthcare, the relationship between the two constructs is not clear (Ng & Luk, 2019). Analysis of the concept of patient satisfaction is still in its initial stage, and it needs to be considered in the wider context of healthcare settings (Ng & Luk, 2019).

2.1.1 The relevance of patient satisfaction

Following current global and social trends, the healthcare industry has developed its marketing strategy and tactics to effectively position its products and services. Along with the rise of healthcare marketing, patient satisfaction has become a critical concern. Like consumer satisfaction, patient satisfaction is defined as one's feeling of pleasure or disappointment resulting from a comparison of the person's perceived performance, product, or service and his or her expectations for it (Habbal, 2011). Following the definition, patient satisfaction is an outcome of the correlation between perceived performance and expectations. If expectations are met and exceeded, a patient is satisfied; otherwise, the patient is dissatisfied and perceives the experience in a negative manner (Habbal, 2011).

Improving patient experience and satisfaction has become a primary concern for care providers worldwide. Managers of healthcare facilities and organisations adopt various techniques, methods, and processes to integrate patient reporting and satisfaction measurement as integral parts of the system. In response to this need, a number of studies have already addressed the issue of patient satisfaction and the means for improving it. Healthcare management research has distinguished a range of factors that shape patient satisfaction with medical services, such as age, gender, ethnicity, education, and perceived quality (Otani, Herrmann, & Kurz, 2011). However, the results in terms of socio-demographic characteristics and clinical variables vary depending on the context of the patient satisfaction measurement (Alberto Sánchez-Piedra Francisco Javier Prado-Galbarro & Sarriá, n.d.). Romero-García *et al.* (2019) did not detect a correlation between the patient satisfaction level and socio-demographic factors; rather, patient satisfaction was found to be associated with the perceived state of health (Romero-García *et al.*, 2019). Chen *et al.* (2019) have emphasised that patient satisfaction may be affected by patient-level characteristics and mental health scores. Sex, age, race, socioeconomic status, and education level were found to be associated with satisfaction level. Younger male patients with lower socioeconomic status and with a poor mental health score tended to be less satisfied. Chen *et al.* (2019) have also identified an association between patient satisfaction and health outcomes. Furthermore, the concept of patient satisfaction allowed for the evaluation of hospital performance and the services patients received. Medical equipment, physical infrastructure, distance from the hospital, and information received have also been found to impact patient satisfaction (Hussain, Asif, Jameel, Hwang, *et al.*, 2019). In addition, waiting time, doctors, and nurses' services were emphasised as important predictors of patient satisfaction (Hussain, Asif, Jameel, & Hwang, 2019).

The given commercialisation of the healthcare sector has produced detrimental effects on the physician-patient relationship, cost of care services, and waiting times, which has reduced the overall satisfaction of the population with care providers. In healthcare, the notion of quality encompasses two dimensions. From the clinical perspective, quality of care refers to the capacity of medical services to achieve clinical goals, as defined by the nature of individual clinicians (Boaden et al., 2008; Dawda et al., n.d.). From a nonclinical perspective, quality is viewed in the preferential sense, highlighting the relationship between healthcare provider and patients, in which care providers exhibit respect for and consideration of patients' individual, demographic, social, or cultural needs (Gholipour et al., 2018).

It becomes obvious that there is lack of clarity in the definition of the concept of patient satisfaction, as well as lack of deep investigation into patient views and beliefs (Rapport et al., 2019). Taking into account patients' growing needs, one important basis of medical service quality is the comparison between feelings during the medical service and prior expectations (Fang et al., 2019). Patient values and expectations regarding interpersonal management contribute to the definition of care quality. Moreover, patients are the primary definers of medical service quality rather than clinical conditions and health outcomes (Habbal. 2011).

Closely associated with the quality of care provided, patient satisfaction is a multi-dimensional concept. It reflects the patient's subjective perception and assessment of care in compliance with initial expectations of it. Moreover, patient satisfaction is subject to the effects of other quality dimensions and factors, which confirm its overarching quality domain (Edlund et al., 2003). In other words, the way a person understands how, in what form, and to what extent care should be provided determines one's expectations for it and one's further satisfaction with a healthcare experience. In this respect, patient satisfaction serves as a major indicator of care quality and as a means of tracking improvement in the field (Hekkert et al., 2009).

Patient satisfaction is a pivotal criterion for measuring quality of care, as it provides the patient feedback on the provider's success in addressing and meeting patient values and expectations. Due to a high demand for high-quality health services, hospital providers constantly attempt to improve service quality by identifying patients' expectations and their needs (Singh & Prasher, 2019). The rising concern with patient satisfaction as a driver of healthcare quality and its continuous improvement has created a demand for in-depth research into the notion and its determinants. Traditionally, research on patient satisfaction has considered the issue from the following perspectives: healthcare management, service operations management, and customer satisfaction literature (Wicks, Anderson-Fletcher, & Chin, 2004).

As the primary consumers of healthcare, satisfied patients have high value for the industry, shaping the active and continuous utilisation of health services, regular referrals, requests for prescribed medications, and follow-up treatment (Hekkert et al., 2009). Without a close and productive relationship with patients, care providers cannot respond to ever-changing health needs in the community in an immediate, efficient manner. Hence, patient satisfaction can be either a driver of or a barrier to the professional and financial success of a healthcare provider (Drain, 2001).

While healthcare management views patient satisfaction as a strategic instrument for achieving and maintaining a competitive market position, service operations management considers satisfaction a means of monitoring, studying, and continually increasing the quality of care rendered to the public (Mosadeghrad, 2014). Through this lens, healthcare quality results from cooperation between a care provider and a patient in a supportive environment. Given the reciprocal relationship between two major care parties, personal factors of the both affect the quality of the patient experience, health outcomes, and the perceived performance. In addition, organisational culture, structure, and processes, along with clinical practices, influence interactions between physicians and patients, thereby contributing to the care quality and patient satisfaction (Murti, Deshpande, & Srivastava, 2013). Efficient organisational leadership and management play a critical role in creating favourable conditions for successful physician-patient communication. Indeed, continuous staff education and development, proper planning and scheduling, resource allocation, supply management, and corresponding guidance are likely to improve collaboration within the facility and result in increased levels of patients' assessment of quality and satisfaction (Mosadeghrad, 2014).

Another approach that has been distinguished in patient satisfaction research focuses entirely on the personal and social variables that inform a patient's decision and perception of the medical services experienced (Habbal, 2011). The patient satisfaction literature includes an in-depth investigation of various factors that may shape a person's perception of a healthcare experience. Patients' perceptions of service quality are an important target point in the pursuit of delivering better healthcare services (Singh & Prasher, 2019). Elements of patients' perceptions (health promotion, communication and partnership, personal relationships, prognosis and diagnosis approach, and interest in the impact on life) may help identify various outcomes (Little et al., 2001).

Given the mediating role of patient adherence, one can ascertain a cause-effect association between patient satisfaction and continuity of care, which underpins the perceived quality of care. Furthermore, empirical evidence suggests a reciprocal relationship between patient satisfaction and the financial performance of a healthcare institution or facility (Mehta, 2015). Satisfied patients are likely to share their positive experiences with others, thereby contributing to the positive public image of a healthcare provider. Dissatisfied patients are believed to share their negative experiences in an even more intensive manner. Therefore, individual patient experience and satisfaction are an integral component of public opinion regarding a particular healthcare facility or the overall healthcare industry. The rise of the internet and online communication channels has only increased the role of patient satisfaction in measuring organisational performance, increasing healthcare improvement, and shaping the financial success of healthcare (AAHC, 2015).

Since all patient experiences matter, it is critical to adopt patient-reporting systems and measures to monitor and record personal, clinical, and other patient-related information. Hospitals with a customised approach, patient reporting, and a record of patient satisfaction are more attractive to potential health-care consumers, and these aspects define their financial performance, as well. Thus, hospitals rated with positive patient experiences earn disproportionately more than settings with lower patient ratings. In

other words, patient satisfaction is a precursor to repeated referrals and the public utilisation of healthcare services (Deloitte, 2016). It is also a guarantor of government support and continuous investment in the improvement of care quality.

Different countries with different healthcare systems and different cultures may reflect the differences in patient satisfaction and patients' expectations (Alberto Sánchez-Piedra Francisco Javier Prado-Galbarro & Sarriá, n.d.). Researchers have noted these differences regarding regulatory, financial, organisational, and payment characteristics, all of which may impact physician behaviours and relationships with patients (Alberto Sánchez-Piedra Francisco Javier Prado-Galbarro & Sarriá, n.d.).

Understanding the importance of efficient communication with patients and the identification and consideration of their needs and interests informs staff's performance and reinforces an active engagement with individual-centred care. Patients have been found to appreciate high-quality information upon arrival and a pleasant communication and discharge (Rapport et al., 2019). Indeed, satisfactory communication can contribute to better patient-doctor relationships (Rapport et al., 2019). In turn, the doctor-patient relationship is a strong predictor of patient satisfaction (Alberto Sánchez-Piedra Francisco Javier Prado-Galbarro & Sarriá, n.d.). Furthermore, follow-up support after discharge can contribute to improved recuperation (Rapport et al., 2019). All of this is reflected in patient-centred care. Patient-centred care and patient satisfaction reflect the quality of healthcare that involves patients in decision-making (Rapport et al., 2019).

Subsequent or follow-up health appointments enhance the quality of healthcare because they present the opportunity to monitor health, confirm treatment regimens, share diagnostic results, and reinforce action plans as well as patient knowledge (Agency for Healthcare Research and Quality, n.d). In a study by Moore et al. (2016), 5% of patients suggested that the provision of more follow-up care would improve their satisfaction with healthcare. According to Ward et al. (2017), the waiting time for specialist appointments in private hospitals was shorter than in public hospitals. One patient felt that the follow-up care in public hospitals was disjointed and led to a worsening of his symptoms (Ward et al., 2017). Private patients tend to be more satisfied because of more attention and a better communication experience, regardless of the kind of care (Pager and McCluskey, 2004; Tateke, Woldie, and Ololo, 2012). Private care also has an advantage in timeliness and hospitality (Basu et al., 2012).

Regular interactions with patients and healthcare professionals are likely to be translated into a better organisational performance and financial gains (Janicijevic et al., 2013). By associating patient satisfaction with better compensation, healthcare workers are inspired to involve patients in decision-making and reach consensus on treatment options. In the pursuit of patient satisfaction, physicians and nurses modify their clinical and communication practices to improve the quality of care (API Healthcare Corporation, 2015).

The outlined importance of patient satisfaction for clinical professionals' satisfaction, continuous improvement of care, and sustainable financial growth explains its inclusion in standards of care as a driver of organisational enhancement. This real-time feedback for care providers outlines areas for improvement in terms of the quality of care, patient satisfaction, and financial performance (AAAGHC,

2015). Hence, patient satisfaction is an essential construct of healthcare structures, processes, and outcomes. Surveying patient satisfaction is a means of building engagement and collaboration between patients and healthcare, as it offers an opportunity to indicate their individual experiences, expectations, and needs.

2.1.2 Patients' expectations and patient satisfaction/perceived quality

Patients' desires and expectations are the main themes in patient satisfaction research because of the sound evidence of their function as its drivers and definers. As indicated above, satisfaction is an emotional state resulting from the correlation between patients' expectations and feelings about the medical service they experience (Pefoyo & Wodchis, 2013). It is a subjective measure of the quality of care received (Habbal, 2011), that is, a patient-reported outcome evaluation (Al-Abri & Al-Balushi, 2014).

Thus, patient satisfaction has been defined as an outcome of perceived quality as a function of patients' expectations and the observed performance of healthcare service (Javed & Ilyas, 2018). The perceived quality of healthcare, in turn, has been defined as the patients' assessment of and impression regarding overall excellence of the healthcare unit (Javed & Ilyas, 2018).

It thus becomes evident that there is some inter-relation among patient expectations, perceived service quality, and patient satisfaction (Conway & Willcocks, 1997). Together with patients' perceptions, it represents an important indicator of a hospital's success (Nadi et al., 2016). There are different views regarding the relationship between patient satisfaction and expectations that create some difficulty regarding its evaluation and interpretation.

Meeting patient expectations may permit an understanding of patient satisfaction to a certain extent (Skolasky et al., 2009). Expectations may also vary depending on time and circumstance (Skolasky et al., 2009). In addition, patients' expectations may differ according to previous experiences, which can serve as a comparison (Karaca & Durna, 2019). Additionally, Adhikari and Acharya (2019) have emphasised a gap between mental patients' expectations and actual behaviour (Adhikari & Acharya, 2019).

Satisfaction levels depend on the way patient expectations meet outcomes (Skolasky et al., 2009). Skolasky *et al.* (2009) have emphasised the correlation between satisfaction, expectations, and outcomes. Licina *et al.* (2013) have noted that patient expectations do not have a strong impact on patient satisfaction and the final outcome. Regardless of whether expectations were exceeded or were not met, most patients in this study were satisfied, including with their outcome (Licina et al., 2013). Gepstein *et al.* (2006) have found an association between male gender, age, high education level, and positive expectations. In turn, high patients' expectations have been found to be positively related to patient satisfaction (Gepstein et al., 2006). Roder-DeWan *et al.* (2019) have demonstrated that low expectations were more likely among less educated male patients if respondents reported good personal health or had previously experienced discrimination during a healthcare visit. Abu-Salim *et al.* (2019) have investigated the gender differences regarding cognitive and affective components of service quality expectations.

Taking into account cognitive and affective components, the results showed significant differences between female and male patients. However, the differences regarding overall service quality between female and male expectations were not statistically significant, except for the empathy dimension (Abu-Salim et al., 2019). Barth *et al.* (2019) have found that higher expectations were associated with higher pessimism and higher sensitivity to medication. Expectations were also relevant for treatment outcomes (Barth et al., 2019); patients' expectations, attitudes, and beliefs may influence their response to treatment and the outcome (Garg & Sachdeva, 2019). Brunner *et al.* (2019) have shown that, before treatment begins, patients' expectations were mainly related to functional areas, such as daily functional performance, social environment, problems of everyday life, and family relationships (Brunner et al., 2019). Toyone *et al.* (2005) have found that meeting expectations does not always lead to patient satisfaction. Some patients were dissatisfied even though expectations were met; this may happen due to unrealistic expectations that patients express (Toyone et al., 2005). Lucas *et al.* (2019) have also noted that some cases may lead to a 'mismatch of expectations' and hence be related to the number of complaints (Lucas et al., 2019). Schaad *et al.* (2019) have emphasised some reasons for the complaints physicians considered which were related to communicational and relational difficulties, physicians' attitudes, medical malpractice, the lack of a coherent treatment plan, and unrealistic patient expectations (Schaad et al., 2019). Physicians play an important role in meeting various types of expectations and in influencing satisfaction (Zebiene, 2004). Zebiene (2004) has identified the most important expectations, such as 'understanding and explanation', 'emotional support', and 'getting information'; thus, a higher satisfaction level was associated with a greater number of expectations met (Zebiene, 2004). Houwen *et al.* (2019) have provided an example of a definition regarding expectations and experiences; in the case of expectations, patients attach a certain importance to communication aspects, and experiences are related to the reception of communication aspects from the GP (Houwen et al., 2019). Patient-centred communication was positively associated with healthcare quality evaluation and trust in the healthcare provider (Hong & Oh, 2019). A large-scale research survey by Bowling, Rowe, and McKee (2013) revealed high expectations for open, informative communication with doctors and involvement in treatment planning. The comparison of patients' expectations and post-visit perceptions illustrated the strong predictability of patient satisfaction when expectations were met or exceeded. Habbal (2011) has summarised this point by highlighting three gaps in patients' healthcare experiences which are likely to affect their evaluation of and satisfaction with care. The first gap may occur between a physician's perception of patient expectations and the patient's actual expectations. The second gap is subject to the correlation between patient expectations and real-life experience, while the third gap is commonly found between patients' experiences and physicians' perceptions of that experience.

Marimon *et al.* (2019) have stressed that the fulfilment of patients' expectations is a mediator between satisfaction and quality (Marimon et al., 2019). Quality is a kind of comparison between performance and expectations (Parasuraman et al., 1985). However, there is a gap between perceived and expected service quality (Adela Laura et al., n.d.; Aghamolaei et al., 2014; Al-Borie & Sheikh Damanhour, 2013; Narjes Mousavizadeh & Mohtashami, 2018). A patient's interpersonal relationship

with a care provider is a mediating factor for the development of a perception (Tabler et al., 2014). Using the SERVQUAL method to evaluate service quality, Fattahi *et al.* (2019) have found that expectation scores were significantly higher than perception scores in all dimensions (Fattahi et al., 2019). The authors observed a greater distance between perceptions and expectations in dimensions such as 'reliability' and 'tangibles'. They also emphasised that good conversation and communication comprise patients' expectations from healthcare staff (Fattahi et al., 2019). Specifically, patients' perceptions develop in compliance with their expectations, which are coloured by cultural background, demographics, and socioeconomic status (Samina et al., 2008). In low- and middle-income countries, low patient expectations may explain high satisfaction with poor-quality healthcare.

Javed *et al.* (2019) have proposed focusing on improving service quality, i.e., meeting expectations. In order to improve the quality of nursing care, health professionals should take into account patients' expectations and satisfaction (Abdel Maqsood et al., 2012). It is evident that patients' expectations differ between public and private hospital visits. Researchers have shown that, for patients in public hospitals, reliability is a crucial component, while for those in private hospitals, responsiveness is key (Javed et al., 2019). Thus, the association between patients' expectations, perceived quality, and satisfaction has been empirically established.

Expectations of the quality of healthcare have an effect on patients' experiences (Roder-DeWan et al., 2019); patients tend to compare the service quality with expectations. In turn, this assessment shows the gap between perceptions and expectations, which may contribute to the improvement of service quality (Nadi et al., 2016). Hence, in order to achieve superior clinical outcomes, the quality of healthcare should be aimed at meeting patients' expectations. In order to improve healthcare quality, raising expectations regarding quality may be one approach (Roder-DeWan et al., 2019). Barratt and Thomas (2018) have noted the importance of further examinations of patients' expectations and perceptions that determine the relationship between satisfaction and expectations (Barratt & Thomas, 2018).

2.1.3 Measurement of patient satisfaction

Patient satisfaction is a unique construct that should be evaluated from a slightly different perspective than customer satisfaction and by using care-related concepts. The main aim of measuring patients' experience and satisfaction is to understand how they feel about being treated, to learn about their perceptions of the quality of care and related constructs, and to highlight areas of practice that should be improved to achieve better health outcomes and patient loyalty (Stefan, 2006). Continuous assessment is about improving, not simply learning what has been done wrong. It is an on-going process through which providers learn more about their patients and begin understanding their needs and requirements (Stefan, 2006).

How, then, can patient satisfaction be assessed, and what are the main instruments and approaches health providers typically use? One can choose from a number of tools for data collection, such as written or phone surveys, personal interviews, and focus groups (White, 1999). The most cost-effective method is online or mail surveys that can be completed by patients whenever they want. While

online surveys are sent to the patient's e-mail, postal ones are sent to participants' home addresses. However, sending a questionnaire by post is not always convenient, especially in long-term studies, because many patients may no longer live at the address that is on file (Cook, 2008).

A postal survey can be a suitable method of collecting data from a large sample of patients who live in different cities or districts (Coulter, Fitzpatrick, & Cornwell, 2009). This approach is commonly used in empirical studies because it allows respondents to think and answer questions in privacy, and researchers receive more detailed responses they would not be able to obtain due to time limitations in, for example, telephone surveys (Cassileth, Turk, & Dush, 2014). To achieve a high response rate, researchers need to send reminders to non-respondents and to inform all participants of the value of their honest feedback and its implications for practice. The use of pre-paid envelopes in postal surveys is also recommended to encourage respondents to participate (Coulter et al., 2009).

Like any other data collection method, mail and postal surveys have drawbacks. Self-administration means that patients with limited literacy skills may not understand all of the questions well, which in turn undermines the accuracy of the results (Thomas, 2007). More importantly, compared to telephone surveys, which achieve approximately an 85% response rate, mail surveys have only a 13%–15% response rate (Berkowitz, 2010). Although strategies exist to increase the response rate, as mentioned in the previous paragraph, no real controls can be enforced to ensure that most respondents will agree to participate. Another common concern is that the opinions of people who respond may differ significantly from those who refused to participate, which prevents generalising the findings (Berkowitz, 2010). Nevertheless, large-scale studies requiring substantial samples still rely on mail surveys due to their cost-effectiveness and convenience.

Numerous empirical studies on patient satisfaction have successfully used mail surveys. Gayet-Ageron *et al.* (2011) used a mail survey and focused on exploring barriers to participation in patient satisfaction surveys. A questionnaire was sent in the fourth through eighth week after discharge, along with a cover letter explaining the purpose of the study and a business-reply envelope. Two reminders were also sent to urge participants to answer. The response rate in this study was 64%, which suggests that, with proper planning, mail surveys can be an effective data collection tool.

Phone surveys generate similarly reliable results, but they also allow interviewers to ask additional or clarifying questions, thus producing richer information (White, 1999). To conduct a successful phone survey, one needs to have trained and experienced staff and ample time, since collecting the necessary sample is a long process. However, a phone survey is an effective means of generating rich data, even if standard questionnaires are used. In addition, phone surveys are believed to have higher response rates than mail surveys, which is beneficial for generalising the results (Kennedy, 2015). Quantitative data collected during telephone surveys is easier to manage compared to qualitative data, and this is important in large-scale studies.

Many empirical studies have successfully used phone surveys to investigate patient satisfaction with services. For instance, Bashari *et al.* (2015) conducted a telephone follow-up survey to explore patients' experiences. Researchers developed their own patient satisfaction questionnaire (PSQ) and used

a four-point Likert scale to collect the data. López *et al.* (2010) also conducted a telephone survey of patients with a response rate of 78%, which is significantly higher than that of most mail surveys. Finally, the study by Flanagan, Kainth, and Nissen (2013) used a telephone survey to measure patient satisfaction. Researchers used a seven-point Likert scale instrument with two open-ended questions to collect the data, which allowed for a combination of quantitative and qualitative data; the response rate in this study was 58.9% (Flanagan *et al.*, 2013). As these empirical studies show, the main advantage of telephone surveys is that they allow a higher response rate, which is critical for obtaining accurate data and generalising the results.

A study by Cheldelin, Dunham, and Stewart (2013) compares how the method of data collection (mail or telephone survey) affects the results. Scholars surveyed 813 families after discharge in parallel surveys conducted online and by phone. All participants answered the same five questions, and the results were then analysed and compared using *t* and Pearson correlation coefficients. The results showed that three of the five questions generated significantly different results, while for the other two questions, no significant linear correlation between the methods used was found (Cheldelin *et al.*, 2013). These results show that respondents of mail and phone surveys have different attitudes, and this difference should be explored in future studies.

Patient satisfaction surveys can also use qualitative methods of data collection, which allow an in-depth understanding of respondents' experiences. The most commonly used method is in-depth, face-to-face interviews, which are conducted with each patient individually (Coulter *et al.*, 2009).

Empirical research by Dansereau *et al.* (2012) has shown that exit interviews, which are performed upon discharge, can be successfully used to measure patient satisfaction. Their main advantage is that they assess experience when patients' memory is not affected by subsequent events, and they remember everything clearly to provide an accurate assessment of service quality. However, exit interviews do not give patients time to reflect on their experience, which may result in distorted or emotionally inflected responses (Coulter *et al.*, 2009). Further, some patients may simply feel too unwell to answer questions during discharge, so the right timing and attention to each specific case are important. Interestingly, a study by Wongus *et al.* (2015) has shown that, contrary to common belief, the timing of the survey may be not important unless it is conducted within the first 30 days after the discharge or visit. Researchers have found no significant difference between the answers of those who were surveyed in the office and those who were later reached by mail (Wongus *et al.*, 2015).

The study by Salam *et al.* (2010) also included exit interviews. Researchers conducted a survey to assess patients' satisfaction; they approached 310 patients within the premises and used a Likert-type scale to collect the data. Researchers spent three man-days in each facility to generate the dataset needed. Although it required much time, Salam *et al.* (2010) managed to present rich data that local facilities could use to address patient concerns. Gebremedhn, Chekol, Amberbir, and Flatie (2015) have shown that interviews are also a valuable method of data collection to learn about patients' post-operative experience while they are still in the hospital. Using this method, patients' satisfaction with anaesthesia can be measured to adjust the practice if needed.

Chow, Quine, and Li (2010) have argued that qualitative and quantitative methods of data collection can be mixed to obtain more accurate results. Researchers have shown that the results of a quantitative, self-administered questionnaire survey are perfectly explained by the qualitative data generated during semi-structured, face-to-face interviews. Specifically, this mixed approach expands the dimensions of research and enables a deeper investigation of the determinants of patient satisfaction (Chow et al., 2010). Coulter *et al.* (2009) have added that, unlike impersonal quantitative data generated during mail or phone surveys, data collected during face-to-face interviews is personal and emotional. It can be videotaped to present to the staff, thus showing them how their practice affects people on physical and emotional levels.

Focus groups can also be used as a method of qualitative data collection. Coulter *et al.* (2009) have argued that focus groups typically contain six to 10 participants who are asked about their experience as patients. Information is generated in the form of a guided discussion led by an experienced interviewer. The main advantage of this method is that it allows surveyors to learn more about cultural differences, but it cannot show general trends in patient satisfaction due to the small sample size (Coulter et al., 2009). Other qualitative methods of data collection about patient satisfaction include online comments, complaints, on-site comment cards or suggestion boxes, and patient diaries. (Coulter et al., 2009). However, these approaches can be used as a complementary method only, as they do not generate rich and accurate data that can be generalised to the population as a whole.

2.1.4 Instruments of data collection regarding patient satisfaction

Instrumentation is one of the most important issues when measuring patient satisfaction (Chisholm-Burns, Vaillancourt, & Shepherd, 2012). However, before discussing instruments themselves, it is important to understand how to assess them from the perspectives of validity and reliability (Bradley, 2013). As defined by Sullivan (2011), ‘reliability refers to whether an assessment instrument gives the same results each time it is used in the same setting with the same type of subjects’ (p. 119). The validity of the instrument concerns how well an assessment tool measures the outcome of interest or, in other words, the extent to which the interpretations of the results are warranted (Kimberlin & Winterstein, 2008).

The way validity, reliability, and related constructs are measured depends on the type of instrument and its structure, as Sullivan has argued (2011). Thus, internal consistency is measured by creating two or three questions that assess the same concept. The difference among answers is then calculated using the Cronbach’s alpha test, in which estimates close to one show the highest reliability. Test/retest can also be used, but it requires at least two administrations of the same instrument and is, therefore, more time-consuming (Sullivan, 2011). The validity of the instrument is tested in terms of content, response process, outcomes, and the relationships to other variables. Notably, different types of instruments may require a focus on one or several of these aspects (Sullivan, 2011). In general, an instrument with high reliability and validity can generate accurate results that can then be applied in practice; therefore, each instrument is tested for validity and reliability before administration.

One of the most common instruments used to assess patients' satisfaction with services is Patient Satisfaction Questionnaire (PSQ) (Ware et al., 1976). This instrument assesses satisfaction with aspects such as technical quality, interpersonal manner, accessibility and convenience, availability, efficacy and outcomes, finances, continuity, and physical environment (Chisholm-Burns et al., 1976). Since the 1970s, when the PSQ was first introduced, it has been modified and adjusted to different clinical settings, which shows its flexibility. The PSQ is mainly used in two forms: the long PSQ-III questionnaire and its shortened version, the PSQ-18. Hagedoorn *et al.* (2003) have shown that the PSQ is an appropriate measure of patients' satisfaction; however, researchers have noted that it is important to pay attention to potential response bias and adjust the number of dimensions depending on the patient groups.

Numerous empirical studies have been conducted using different variants of the PSQ. For example, Thayaparan and Mahdi (2013) have tested the application of the PSQ-18 and shown that it is concise and accurate enough to be used in different clinical settings and with different patient groups. It can be adapted for use in primary care and outpatient departments, as well as to provide valuable data for comparing satisfaction with different clinical interventions (Thayaparan & Mahdi, 2013). A study by Ganasegeran *et al.* (2015) that explored patients' satisfaction with outpatient medical care used the PSQ-18, which Marshall and Hays (1994) originally developed. The researchers used seven dimensions and 18 items and asked respondents to assess their experience using a five-point Likert scale.

Henriksen, Heller, Finucane, and Oxenham (2014) conducted a pilot study to understand whether the PSQ can be used to measure patient satisfaction in palliative care settings. First, the scholars administrated questionnaires among hospice patients and then conducted semi-structured interviews to explore respondents' experiences of using the PSQ. The results revealed that the PSQ was perceived as a clear, concise, and non-burdensome instrument for this population group. Interestingly, many patients expressed their willingness to participate and appreciated the opportunity to voice their opinions (Henriksen et al., 2014). In the face of time limitations and patients' limited abilities to participate and give detailed answers, the PSQ can be a useful tool because it is time- and cost-effective and evaluates the main contributors to patient satisfaction.

SERVQUAL is another widely used instrument for assessing patient satisfaction and overall experience. It was initially designed by Parasuraman *et al.* (1988) and then adjusted to a variety of organisational settings. Its 10 dimensions have been specifically adjusted to reflect patients' experiences and measure their satisfaction from different perspectives. Thus, the 'tangibles' dimension in SERVQUAL refers to the personnel, communication materials, equipment, and physical facilities used in the hospital (Shelton, 2000). Reliability refers to the staff's ability to perform the promised service, while responsiveness is their willingness to help patients in a timely manner. Furthermore, competence refers to professional knowledge and skills, courtesy refers to respect and politeness, credibility refers to honesty and trustworthiness, and security means the absence of risk or danger to the patient's health. Finally, accessibility, communication, and understanding of the customer refer to the same aspects of provider-customer relationships as in any organisational setting (Shelton, 2000). In most studies, these five

dimensions are represented in a concise form and include only tangibles, reliability, responsiveness, safety, and empathy.

Many empirical studies were conducted during the past decade using SERVQUAL in a variety of clinical settings and with different patient groups (Al-Borie and Damanhour, 2013; Bahadori et al., 2014; Yunus et al., 2013). In other words, SERVQUAL can be used in many such settings and can generate rich, valuable results due to its comprehensive structure and ease of use.

Beattie, Murphy, Atherton, and Lauder (2015) conducted an interesting systematic review and analysis of questionnaires measuring patients' satisfaction. After collecting data from different scientific journals, the researchers selected a total of 11 instruments for review. These included Quality from the Patients' Perspective (QPP), the Picker Patient Experience Questionnaire (PPE-15), the NHS Inpatient Survey (NHSIP), the Patient Experience Questionnaire (PEQ), and others. All instruments except for the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) had high content validity, and all except the NHSIP were found to be reliable based on a Cronbach's alpha assessment. Only three instruments were found to be cost-effective, while the rest required extensive resources to generate accurate data (Beattie et al., 2015). Researchers concluded that, given a large selection of instruments available online, it would not be difficult for providers to select an appropriate one which would suit the purpose. However, to make the right choice, Beattie *et al.* (2015) strongly recommended a careful consideration of all the advantages and disadvantages of each instrument.

Based on the previous research, Beattie *et al.* (2016) conducted a new study presenting their own patient satisfaction assessment instrument. They suggested that their Care Experience Feedback Improvement Tool (CEFIT), which was based on a sound theoretical model and preliminary research, could become a universal, flexible tool to use in different clinical settings. Beattie *et al.* (2016) used a sample of 802 participants to complete the questionnaire. Its internal consistency validity was then tested with the help of the Cronbach's alpha. The results revealed that CEFIT is a concise yet sound instrument to evaluate patients' experience. It consists of only five items, which makes it easier to apply in practice and does not deter participants, as long and tiring surveys do. However, Beattie *et al.* (2016) noted that future studies should further explore the utility of the instruments in the clinical setting.

A study by Iseli, Kunz, and Blozik (2014) employed a systematic review of instruments that assess patients' satisfaction after triage and teleconsultation. Researchers selected 16 instruments described in the literature and analysed them from the perspective of validity, content, reliability, and factor analysis. Iseli *et al.* (2014) found only four instruments that contained detailed information regarding their development and psychometric properties, and most of the tools had significant methodological limitations and a lack of evaluation. Ng and Luk (2019) have also noted that many studies have methodological faults. Similar to Beattie *et al.* (2015), scholars have noted that providers seeking an instrument to assess satisfaction should carefully consider all positive and negative features of the available studies and select only those that fully meet the requirements.

2.2 The importance of emergency medicine in the context of the emergency department

The need for emergency medical services has grown worldwide and plays an important role in any system of healthcare (Vazquez et al., 2013). The United States and United Kingdom were pioneers in recognising the importance and necessity of the emergency medicine specialty (Williams, 2015). Today, emergency medicine is a recognised, global medical specialty (Fleischmann & Fulde, 2007). According to the European Society for Emergency Medicine, emergency medicine consists of a wide range of medical aid, such as diagnosis, prevention, and acute treatment provided in the framework of a restricted time, both in and out of the hospital setting (Rotaru & Voicescu, n.d.).

Two core models/systems of emergency medical services are the Anglo-American model, in which the patient is referred to the physician, and the Franco-German model, in which the physician is referred to the patient (Dick, 2003). Countries with the Anglo-American model have a quite high percentage of private healthcare (67%), while public healthcare accounts for only 33% of them (Vazquez et al., 2013). In countries with the Franco-German model, such as France, Italy, and Germany, public healthcare spending prevails over private healthcare spending. However, many countries have taken advantage of modified versions of both models, which could serve as an improved contribution to pre-hospital care (Vazquez et al., 2013). Hence, there is a continued need for innovations in order to improve the existing models and to solve the existing problems.

The emergency room is related to a specific hospital area where patients with different medical conditions, life-threatening diseases, and injuries can access rapid medical aid and treatment (Penuel et al., 2011). However, today, the increased complexity of the given conditions, treatments, doctor sub-specialisation, increases in size and area of emergency room facilities, and diversified services have turned the 'emergency department' into a more commonly used term (Penuel et al., 2011). The ED is an integral component of any hospital and has its own director and medical and nurse teams (Totten & Bellou, 2013). The ED plays a crucial role, especially for those patients who, for various reasons, are limited in their access to primary care (Penuel et al., 2011).

The complexity of healthcare needs is associated with increased demand for ED services, and the reasons for using the ED vary. In one study, the main reason for visiting the ED was to obtain a rapid physical examination (36.4% of patients), 30.9% of patients could not book an appointment with alternative health facilities early enough, and 12.8% said that the ED was closer to where they lived (Idil et al., 2018). Hsia and Niedzwiecki's (2017) retrospective analysis of more than 100,000 ED records representing 424 million ED visits has shown that 3.3% of all visits to the ED were avoidable (i.e., did not require any diagnostic tests, procedures, or medications). The main complaints were a toothache, headache, back pain, throat soreness, and symptoms related to psychosis (Hsia & Niedzwiecki, 2017). Alcohol abuse disorders, dental problems, and depressive disorders were among the top three discharge diagnoses. According to Abolfotouh et al. (2017), the reasons for visiting the ED were shortness of breath (10%), abdominal pain (25.5%), vaginal bleeding (10%), and trauma (10.5%), while Idil et al. (2018) have shown that musculoskeletal system pain was the most common complaint (25.2%). A qualitative study by Sieck, Hefner, Wexler, Taylor, and McAlearney (2016) has shown that the most common

reasons for seeking ED services were patients' perceptions that the ED provides better care, a limited understanding of primary healthcare and emergency care, and limited or no access to primary healthcare. Other reasons were a lack of insurance in primary care (for cases where the ED has no co-pay or is free); difficulties making appointments in primary healthcare; convenience of use; and logistical factors such as transportation, childcare, and the number of hours the facility is open (Sieck et al., 2016). In a study by Lozano et al. (2015), limited access and inefficient primary care were strongly correlated with ED usage. Approximately 54% of uninsured patients admitted at a university teaching hospital claimed that they used the ED because they faced challenges with accessing primary care; 74% of the patients said that a lack of insurance had contributed to their current admission, and 36% said that they had faced challenges with access to medications. Too many non-urgent referrals or walk-ins to the ED may increase overall patient waiting time for these and other patients, which may impact patient satisfaction and the delivery of quality healthcare.

The rise in the disease rate among a growing population contributes to increased demand for ED services (Penuel et al., 2011). He *et al.* (2011) have emphasised the main factors that have an impact on ED demand, which include health needs (the type of illness or injury, its urgency, and its severity) perceptions (quality of care, illness, and benefits), societal factors (population growth, aging, and seasonal outbreaks), predisposing factors (insurance, gender, age, and socio-economic status), and policy factors (hospital type, size, population catchment, geographical location, insurance, and rebate policy; He, 2011).

According to the statistics provided by the CDC (2017), in 2014 alone, more than 141 million Americans used ED services. Nearly 40 million visited EDs with injuries, and most of those cases required immediate hospitalisation. Almost 1.8 million patients were referred from EDs to critical care units (CDC, 2017). This data shows that the importance of emergency medicine can hardly be overestimated. In the face of budget limitations and a high workload, an increasing number of people have to use ED services because they cannot access timely, quality preventive care. As Moore, Stocks, and Owens (2017) have noted, these trends change over time depending on insurance coverage, access to primary care, and care-related federal and local policies.

One must distinguish between the types of emergency departments available, for example, in the USA. According to the Centres for Medicare and Medicaid Services (CMS), EDs can be divided into two large groups: Type A and Type B (Fulde, 2009). The first type of facilities is open 24 hours a day, seven days a week all year long, while the second type is available fewer than 24 hours a day (Abbey, 2008). The most acute cases are treated in Type A facilities, while the rest of the patients are referred to Type B ones. Critics have argued that the second type of emergency care is unnecessary because it does not differ much from standard primary care. However, research conducted by Honigman *et al.* (2013) has shown that the reduction of non-urgent EDs to save costs is not a solution given the large number of patients who use these services. Due to limited access to quality primary care for injuries or acute illnesses, Type B EDs provide essential care to prevent mortality and morbidity. Interestingly, some U.S. states have introduced EDs that are not attached to hospitals. The rationale behind these new facilities is the ability to

provide urgent care quickly and effectively to improve health outcomes and patient satisfaction (Schulte, 2012).

Upon arrival to the ED, patients undergo the triage process. The majority of EDs use a triage system in order to facilitate the process of patient prioritisation (Zachariasse et al., 2019). This process identifies and distinguishes low- and high-urgency patients according to medical condition and treatment priority (Iserson & Moskop, 2007). Incorrect patient classification may lead to adverse health effects (Zachariasse et al., 2019); thus, the correct classification plays an important role in terms of waiting time optimisation and patient safety (Zachariasse et al., 2019). Currently, there are several widely used triage tools, such as the Australian (Australasian) Triage System (Scale), which has five categories of treatment acuity; the Manchester Triage System, which has five urgency categories; and the Emergency Severity Index and Canadian Triage and Acuity Scale, which also has five levels (Robertson-Steel, 2006; Bazzyar et al., 2019).

EDs handle many conditions (Fulde, 2009). Some patients are admitted to the ED with cardiac arrest, which sometimes occurs in the ambulance on the way to the hospital. In such cases, basic life support should be provided. A heart attack is another common condition treated in EDs, and it requires urgent triage to the resuscitation area. In serious cases, transfer to a different facility with more advanced equipment may be possible. Most commonly, people are admitted to EDs with traumas and injuries. In the ED, people with injuries can be examined, and some basic tests, such as X-rays, can be performed to develop an effective treatment plan. Asthma and chronic respiratory diseases also qualify as conditions that require emergency care (Pines & Everett, 2011).

The number, severity, and complexity of the illness(es) also matters. In van Oostrom et al. (2014), patients with more than one chronic disease had an average of 18.3 contacts with the healthcare system compared to 11.7 contacts per year for patients with one chronic disease. Patients without any chronic disease had only 6.1 contacts per year on average (van Oostrom et al., 2014). According to McPhail (2016), the presence of multiple chronic illnesses is associated with high levels of medication use, ED presentation, occasions of service for primary and specialist care physicians, and hospital admission, all of which have economic and quality consequences for healthcare systems. Multi-morbidity increases healthcare costs and resource utilisation and thus limits the available resources to treat other patients (McPhail, 2016). In Palladino, Lee, Ashworth, Triassi, and Millett (2016), the number of chronic conditions had a strong correlation with healthcare utilisation and poor health statuses. In Hopman, Heins, Korevaar, Rijken, and Schellevis (2016), multi-morbidity was associated with significantly more prescribed medications, GP contact, and hospital admission compared to having one chronic disease ($p \leq 0.0001$). High healthcare utilisation was associated with chronic diseases such as diabetes, COPD, and heart failure (Hopman et al., 2016). Agarwak, Bias, Madhavan, Sambamoorthi, Frisbee, and Sambamoorthi (2016) have shown that patients with complex chronic diseases have more ED visits (IRR=3.33). In Wang et al. (2016), 72% of all ED visits and 62% of all readmissions within a 30-day period were due to underlying chronic illnesses, while organ failure and underlying malignancy accounted for 53% and 39% of all ED visits, respectively (Wang et al., 2016). Post-discharge, underlying

malignancy and organ failure led to readmission in 45% and 47% of the cases, respectively, within 30 days of the discharge from the index hospitalisation (Wang et al., 2016).

To a certain extent, rapid medical technology development has contributed to the reform of emergency medical service systems, such as monitoring systems (Al-Shaqsi, 2010). Much attention has also been paid to the human factor and improving practice standards (Vazquez et al., 2013). However, various countries face different public health problems regarding emergency medical services, including the unavailability of modern facilities, ambulance vehicles, and skilled pre-hospital providers (Vazquez et al., 2013). In some countries, problems such as a lack of comprehensive regulations and legislation concerning functionality and the structure of emergency system persist. In addition, other important aspects that should be defined clearly include education, the training of personnel, and the financing structure (Rotaru & Voicescu, n.d.).

The structure of emergency medical services across Europe is more or less the same, with similar means and response times, as well dispatch centres; at the same time, the structure differs regarding the personnel who staff ambulances and their training, especially the training of emergency medical technicians with equal skills (Chenaitia et al., 2011). The educational systems of the European Union are quite different, and specialist education can be offered by private institutions, universities, or the government. This applies to the training of physicians, nurses, and paramedical staff. Ultimately, there is a lack of uniformity in terms of educational programmes in the field of emergency medicine (Rotaru & Voicescu, n.d.).

Both safety in EDs and patients' satisfaction with services directly depend on the staff and their surroundings (Fulde, 2009). To begin, it is critically important for the ED staff to make a positive first impression. Staff members' clothes should always be clean, as should their hands and equipment, to maintain the safety of both patients and staff. Nurses and physicians should be able to demonstrate genuine concern and attention to patients' needs, and they should not differentiate patients according to gender, ethnicity, health, socioeconomic status, or other characteristics. Equality is the principle that works both in general practice and in emergency medicine, and respecting diversity is an essential part of ED practice (Nixon, 2013). ED professionals should possess adequate skills and knowledge to provide treatment in the most acute cases and refer patients with minor problems to other departments, where their issues would be addressed in the order of arrival. ED staff should make sure that every patient understands and accepts treatment, and they should be ready to address conflicts and complaints (Fulde, 2009).

Sometimes, ED personnel must address difficult, non-health-related issues. For example, there are cases when inappropriate attenders demand urgent care (Fulde, 2009). Physicians and nurses should be able to recognise whether a person truly needs ED services and try to explain the referral procedures if the case does not qualify for emergency care. Some population groups may be dissatisfied with the referral, especially if insurance or financial problems arise. Each particular case, therefore, should be adequately analysed to ensure that even those who do not require emergency care will be treated in another department (Kayden, Anderson, Freitas, & Platz, 2014). Furthermore, some patients admitted to

the ED are homeless; they have high risks of developing chronic and acute diseases and have no access to quality preventive care. Providing these people with not only medical services but also shelter and food is the primary responsibility of the ED personnel. The staff can contact related social services to support the person and make sure he/she will be cared for after treatment (Levy & Sidel, 2013). Special attention should be paid to people with mental illnesses because they require additional care.

In summary, emergency staff should be trained properly and should be equipped with the correct tools, equipment, and other systems of communication in order to guarantee a high quality of healthcare, reliability, and safety during all stages of the medical emergency event (Vazquez et al., 2013).

Lehtonen *et al.* (2016) have noted some challenges that many EDs face, such as resource scarcity (facilities, equipment, and staffing), inefficient use, and low capacity efficiency. Thus, the researchers have proposed some ideas and ways to enhance ED functionality and to improve capacity efficiency with respect to ED staffing (the optimal allocation of nursing staff and the identification of demand for various specialties) and ED premises (bed organisation, the design of patient locations, ED layout optimisation, and space usage improvements; Lehtonen et al., 2016).

Carefully developed and approved recommendations can guide emergency medicine. According to the American College of Emergency Physicians (ACEP), it is essential for emergency medicine to comply with the highest standards of practice and use only evidence-based procedures and practices to provide quality, timely care (ACEP, 2016). At the same time, the ACEP highlights that any guidelines adopted at the hospital level should always be implemented with physicians' oversight. In other words, the focus should always be on evidence and current scientific research, as guidelines may not always reflect the most recent findings, and thus they cannot represent the standard of emergency care.

Nevertheless, policy statements are essential for shaping and developing emergency care. According to the recent policy developed by the ACEP (2016) and the National Association of EMS Physicians (NAEMSP), EDs should acknowledge the role of safety as the main criterion of practice. All staff working in EDs should understand and prevent health-related risks, as well as protect the personnel and members of the community. There should be a transparent, just culture to enable personnel to report risks and errors promptly and maintain high standards of accountability and professionalism (ACEP, 2016). Moreover, this policy encourages physicians to remain current with the latest achievements in clinical research and practice and suggest improvements in procedures, technologies, or equipment to make patient care safer. To summarise, emergency medicine is a critically important area of clinical practice that demands high standards of care, adequate training, and resources because millions of people depend on ED services each year.

2.2.1 Patient satisfaction in the context of the emergency department

Improving patient satisfaction is a central goal for any healthcare organisation (Birkelien, 2017). It is related to improved health outcomes, increased levels of treatment process adherence, and prevention (Chandra et al., 2019). The ED population may include those suffering from a serious internal trauma or

illness, which requires immediate professional attention. However, ED patients are not always aware of the emergency, or they may not understand it, which can result in poor health outcomes.

When monitoring ED performance, a certain set of indicators and patient outcomes should be taken into consideration (Suriyawongpaisal et al., 2019). In the aftermath of the decades-long study of ED-specific patient satisfaction, one can distinguish five major components of the patient experience with emergency medicine and the perceived quality of ED care: timeliness of care, information distribution, technical competence, pain management, and empathy determine the level of patient satisfaction in the ED (Welch, 2009). In addition, the standardisation of ED processes is likely to establish coordination and collaboration between members of ED teams to increase performance coherence and cohesion.

Agarwal *et al.* (2019) have analysed and compared reviews and ratings of EDs. Researchers have identified some themes related to five-star reviews and one-star reviews. The five-star reviews highlighted facilities, staff interactions, care for family members, professionalism, bedside manner, comfort, paediatric care, and access, while the one-star reviews centred on the telephone experience, billing, communication, diagnostic testing, pain management, service/speed of care, and waiting (Agarwal et al., 2019).

Patients mention the waiting time to see physicians as one of their top priorities (Suriyawongpaisal et al., 2019). In order to avoid negative perceptions, it is important to understand that various factors influence waiting time perceptions. Spechbach *et al.* (2019) have noted some of the most important ones, such as respect for privacy, the feeling of being forgotten, emergency-level assessment by health professionals, and a lack of information regarding the precise waiting time. The difference between expected and actual waiting time should also be noted; this difference is called 'waiting confirmation', and it determines the extent to which reality and expectations differ. Spechbach *et al.* (2019) have shown that patients whose actual waiting time exceeded an expected one perceived their waiting as quite long. Hence, waiting perceptions are directly related to their duration and can be influenced by the difference between the expected and actual waiting time (Spechbach et al., 2019). Thus, if a patient's actual waiting time is shorter than the expected one, he or she tends to be more satisfied (Nairn et al., 2004). Booth *et al.* (1992), Pitrou *et al.* (2009), and Shah *et al.* (2015) have stressed the importance of managing waiting times in EDs to improve patient experiences and attitudes towards care providers. When forming their opinions, patients subjectively define an appropriate, acceptable amount of waiting time, irrespective of clinical reasons and processes that shape the actual time. The gap in patient perceptions of waiting times influences their attitudes towards ED providers and their satisfaction (Saxon et al., 2013).

Mahmood *et al.* (2020) have investigated the use of self check-in kiosks and their relation to waiting times in the ED context. Thus, in EDs with kiosk services, waiting times were 56.8% shorter than in EDs without them. The main predictors of waiting time were ultimately the time of arrival, the day of the visit, triage assessment, chronic medical conditions, arrival by ambulance, hospitals' location, hospitals' full-capacity protocol, and ED boarding (Mahmood et al., 2020).

In addition, long waiting times may create problems such as overcrowding, which turns into an important patient safety issue (Parker et al., 2019). Moskop *et al.* (2019) have investigated the problem of

overcrowding and noted its adverse consequences, such as increased medical errors, provider moral distress, compromises in communication and confidentiality, patient physical privacy, and poorer patient outcomes (Moskop et al., 2019).

Hitti *et al.* (2019) have investigated the predictors and motives of patients who leave EDs without being seen. Most were young and had low acuity levels; their main motives were a non-compensable status (66.9%), long waiting times (12.8%), and financial reasons (12.8%). The main predictors were the education level (lower than the undergraduate level), being of the male gender (more likely to leave), waiting time, a lower number of ED visits in the past year, and a non-compensable coverage status (i.e., lacking insurance coverage; Hitti et al., 2019).

Music, information regarding queue length, and waiting time duration were found to have a positive impact on time perceptions (Antonides et al., 2002). Mandel et al. (2019) have researched the impact of music therapy in the context of ED patient satisfaction and compared those who received music therapy services and those who did not. The results showed improvements in both pain and stress when using music therapy. However, the results did not show statistically significant differences with regard to patient satisfaction (Mandel et al., 2019).

Although addressing perceived waiting times is relevant in managing patient satisfaction, it is essential to identify and consider other factors that affect ED patients' views, as well. It has been empirically shown that language may be a serious barrier to effective physician-patient communication and, consequently, patient satisfaction (Boudreaux & O'Hea, 2004). The physician-patient relationship is vulnerable to a language barrier, which has a negative association with patient satisfaction.

Chandra *et al.* (2019) have shown an association between gender, age, education level, physicians' interpersonal skills/communication behaviour, waiting time, the level of trust, and patient satisfaction (Chandra et al., 2019). The study by Derose *et al.* (2001) examines the role of demographic factors in determining patient satisfaction with ED care. The authors highlight the disparity in patient perceptions and their assessment of physicians according to gender. Female patients reported higher trust, friendliness, and openness to female physicians rather than male ones, which underpinned their perceptions of ED experiences and care quality. Compared to the gender preference given by female patients, male patients paid little attention to the matter when evaluating the quality of care in the ED (Derose et al., 2001).

Patient age, residence, and occupation are important demographic characteristics that influence ED patients' perceptions and satisfaction with healthcare. These personal factors shape individual patients' worldviews, expectations for care delivery, and attitudes towards the system. Interestingly, marital status and income have little relation to ED patients' assessments of their healthcare experiences (Chen et al., 2016). According to Yoon, Cordasco, Chow, and Rubenstein (2015), unmarried patients were more likely to use the ED than married patients ($p \leq 0.01$). Uscher-Pines et al.'s (2013) systematic review of four studies examines the association between marital status and non-urgent ED visits; no association was found. However, Tsai, Liang, and Pearson (2016) have found that non-urgent patients had a higher likelihood of being unmarried. Marital status is likely to influence ED use through the provision

of social support. In a study by Kotagal et al. (2002), mothers who took their children to the ED were less likely to be married ($p \leq 0.001$). An interaction between single marital status and maternal age was also observed to increase the likelihood of ED use (Kotagal et al., 2002). We should also mention employment situation. In a study by Behr and Diaz (2016), the number of full-time employed individuals who visited the ED within a 12-month period was 43.2% compared to 16.8% of part-time employed individuals and 40% of unemployed individuals (Behr & Diaz, 2016). Within a one-year period, 27.8% of full-time employed individuals, 19% of part-time employees, and 53.2% of unemployed patients made five or more ED visits. The frequency of ED visits decreased with increased utilisation for employed individuals but increased for unemployed individuals (Behr & Diaz, 2016).

Although demographic features contribute to patient satisfaction, they are not as significant as the communication aspect (Messina et al., 2015). Information and communication play an important role in the context of patient satisfaction (Blackburn et al., 2019). Blackburn et al. (2019) have emphasised several key themes, such as explanations regarding care and treatment (including triage explanations), communication (including waiting time information and feeling informed), written communication, and expectations of the ED. In emergency medicine, neglectful communication may cause acute problems, as 12% of errors are attributed to communication problems (Fordyce et al., 2003). Continuous overload and exposure to physical suffering reduce staff's susceptibility to the emotional needs of emergency and acute care patients (Johnston et al., 2016). Prioritising the fulfilment of medical functions, ED clinical staff thus does not spend enough time interacting with patients, since approximately 75% of a patient's time in a care area is spent not interacting with care providers (McCarthy et al., 2014). In the context of waiting time, the absence of physician or nurse attention forms the overall perception of ED care (Taylor & Bender, 2004).

Organisational and demographic factors thus affect patient perceptions of the healthcare environment, processes, and outcomes; this proves the multivariate nature of the concept of patient satisfaction in the ED. The physician-patient relationship accounts for the highest proportion of patient satisfaction. In line with the general healthcare shift toward patient-centred care, emergency medicine requires a focus on patient needs, expectations, and preferences to improve care quality and patient experiences (Taylor & Benger, 2004). A descriptive survey research by Chan *et al.* (2009) has investigated an impact of exposing patients to an educational video on their satisfaction with acute and emergency care. A post-educational questionnaire obtained data from 177 patients, most of whom reported an improvement in understanding emergency care processes and systems, and they consequently had a greater perception of medical services rendered. When adjusted for the age factor, the results showed no significant difference between younger and older patients, as both groups were more satisfied with emergency care compared to their earlier perceptions. Patient education has proven to be an effective means of improving patient expectations for and adherence to treatment.

In the context of emergency medicine, it is essential to consider patient understanding and attitudes towards the triage system. The system is an empirically proven and practically acclaimed solution for reducing waiting times and promoting adequate scheduling, transiting of times, and the smart

allocation of ED resources (Smart, Pollard, & Walpole, 1999; Scott, Vaughan, & Bell, 2009). The system allows patients to be immediately labelled according to the urgency of care required to schedule the ED workload accordingly. However, as Toloo *et al.* (2016) have argued, patients' perceptions of urgency may differ from those of staff, as the former are subjective, and the latter are objective and rely on clinical assessment. Further, disagreements regarding triage categories may happen between doctors and nurses (Meek & Phiri, 2005). The discrepancy in staff and patient perceptions of urgency may result in a biased evaluation of the care process and ED performance.

For example, a study by Adeniji and Mash (2016) has demonstrated a correlation between a poor or incorrect understanding of the triage system and negative patient perceptions of medical services rendered. Patients coded green defined ED nurses as unprofessional and impolite, whereas those coded orange or yellow exhibited more tolerance of the ED performance. In this context, research by Shah *et al.* (2015) and Adeniji and Mash (2016) provides another contribution to the communication-focused literature. Their studies illustrate a higher acceptance and a more positive perception of the triage system managed via communication. Moreover, Shah *et al.* (2015) have observed that ED patients are likely to feel satisfied when they are informed why there is a delay in intervention.

Parker *et al.* (2019) have shown some differences regarding admitted and not admitted groups of patients. A higher proportion of admitted patients is observed among the elderly who had a higher triage category, were febrile, and used an ambulance or private transport. According to a study by Algerian, Alhaidar, AlJohi, Albaqami, and Alghnam (2018), 58% of patients arrived via private transportation. These patients were less likely to have in-hospital complications after injuries. However, the difference in hospital complications was not significant. According to Coster, Turner, Bradury, and Cantrell (2017), the lack of access to private transportation prompted 34% of patients to visit the ED in an ambulance rather than seeking primary care services. In addition, a lower proportion of admitted patients has been observed among younger people, who had lower triage category, were afebrile, and were walk-ins (Parker *et al.*, 2019). Alghamdi *et al.* (2019) have observed the highest level of satisfaction among admitted patients during morning shifts among those whose waiting time to see a doctor was not long, and among those who visited the ED in August or September (Alghamdi *et al.*, 2019).

Brouns *et al.* (2019) have demonstrated an association between ED resource utilisation (the number of specialty consultations, medication administration, diagnostic tests, and medical procedures), hospitalisation risk/in-hospital mortality among older patients, and the Manchester Triage System; a higher triage urgency was associated with a higher resource utilisation. Concerning hospitalisation/in-hospital mortality, the Manchester Triage System performance was ultimately better among older surgical patients than among older medical patients. In this case, the surgical specialty included plastic surgery, general surgery, otorhinolaryngology, urology, ophthalmology, orthopaedics, dermatology, gynaecology, and oral surgery. The medical specialty included pulmonology, neurology, internal medicine, psychiatry, cardiology, rheumatology, and gastroenterology. It is important to be aware of a higher risk of unfavourable outcomes among older medical patients in the ED context (Brouns *et al.*, 2019).

Natesan *et al.* (2019) have found two main predictors of patient satisfaction: the system process and the clinical team. In comparison with the clinical team, the system process was found to be a better predictor of the probability of recommending the ED to others. Waiting time, meanwhile, was considered part of the system process along with the overall noise in the ED, cleanliness, admission, and the discharge process. Another important issue concerned patients' families, as some patients come to the ED accompanied by family members. Patients and their families define the system process and clinical team in a different way; perceptions differ regarding discharge, where patients relate it to the system process, while families relate it to the clinical team. However, the only aspect that patients relate to the clinical team is physicians (Natesan *et al.*, 2019).

Mäkinen *et al.* (2019) have stressed the importance of the discharge process, namely, discharge instructions. One half of patients who received discharge instructions were satisfied with the communication at discharge, while the other half of unsatisfied patients felt that ED staff was not aware enough of their background to give instructions. Among other aspects, patients emphasised a lack of opportunities to ask questions, ambiguous instructions, and guidance sessions that were too restricted and short (Mäkinen *et al.*, 2019). Siow *et al.* (2019) have found that lower readiness for discharge was most common among patients who lived alone. In addition, greater readiness for discharge was associated with lower readmission risk (Siow *et al.*, 2019). Hautz *et al.* (2019) have emphasised that, in some cases, the admittance diagnosis may differ from the discharge diagnosis. Researchers have found an association between a longer hospital stay, increased patient mortality, and diagnostic error/discrepancy (Hautz *et al.*, 2019).

Suriyawongpaisal *et al.* (2019) have noted an association between the number of laboratory tests, age, the Emergency Severity Index score, and the length of stay. However, an argument regarding the connection between patient outcomes and the length of stay is ultimately contradictory. Ayer *et al.* (2019) have detected an association between adopting health information exchanges and a reduction in the length of the stay. Stronger financial incentives in the given case can contribute to a higher magnitude of this association (Ayer *et al.*, 2019).

Regarding patient satisfaction in healthcare and the ED specifically, it is relevant to account for the risk of gratitude bias. As a social reality, the healthcare industry has long been vulnerable to social trends, such as inequality, inequity, and discrimination in access to medical services. Moreover, some marginalised groups such as the homeless, the poor, migrants, and others may still experience difficulty in accessing and receiving the required professional assistance (Sansone & Sansone, 2010). Such patients feel gratitude to those who exhibit readiness to listen to and consider their needs. Gratitude bias informs higher expectations for care, more positive perceptions, and greater satisfaction. Feelings of gratitude are likely to prevent a critical appraisal of medical services and care rendered, thereby introducing gratitude bias (Comes *et al.*, 2016).

Gratitude bias is strongly associated with older patients, who commonly suffer from chronic illnesses, comorbid conditions, and an overall weakening of health status. Mental health deviations and emotional problems are also characteristic of this patient group, and these can affect their attitudes and

the perception of the care process, providers, and quality. While they may lack attention and communication in daily life, older patients receive precise consideration from physicians, which produces feelings of gratitude (Killen & Macaskill, 2015). As a result, the elderly may assess the quality and process of medical services in a gratitude-biased manner. Another healthcare domain vulnerable to gratitude bias is emergency medicine, to which patients turn for an immediate professional response and reaction. Due to the department dynamic and overload, nurses are the major source of information, interaction, and treatment distribution for emergency care patients. Their burnout is a well-known fact and an easily observable reality in the emergency setting. With limited attention from physicians, emergency patients are likely to feel gratitude to nurses and thus highly regard nursing care. However, intense working conditions cause emotional exhaustion for nurses, which may shape their performance in a negative way (Converso et al., 2015). Feelings of gratitude do not allow emergency patients to evaluate nursing behaviour and performance critically, which results in biased satisfaction.

Thus, the dynamics and complexity of emergency medicine require a coordinated collaboration between all ED personnel, including nurses, to wisely manage all processes and leave enough time for communication with patients, which has been defined as a critical predictor of patient satisfaction (Vandat et al., 2014). Given the evidence above, the healthcare system and the ED especially require precise attention to improving patients' communication-related experiences while requesting medical services to raise their satisfaction. Although patient satisfaction with ED services does not generate loyalty as it does in primary care departments, satisfied patients are still more willing to follow instructions and are less likely to complain.

2.2.2 Instruments of data collection regarding patient satisfaction in the emergency department

After discussing the most common instruments to assess patients' satisfaction, we must mention some instruments designed specifically in the ED context.

Atari and Atari (2015) have presented the Brief Emergency Department Patient Satisfaction Scale (BEPSS), which can accurately assess ED patients' experience. Researchers selected a sample of 301 customers and distributed a questionnaire to learn about their attitudes. Each of the 24 items was then carefully analysed for quality, and reliability and validity analyses of the scale were also performed. Based on the results, Atari and Atari (2015) designed a 20-item questionnaire that explores the following dimensions: ED environment and staff, physician care satisfaction, and the patient's and patient's family's satisfaction. Given the lack of proper instruments designed specifically for the ED, the researchers made a valuable contribution to helping providers understand customers' experience. In another study, Levandovski, Lima, and Acosta (2015) did not develop a new instrument for the ED but used the Patient Satisfaction Instrument (PSI), which has already been validated in the clinical context. This instrument evaluates three main areas: trust, technical-professional care, and patient education, each of which has sub-domains. Researchers complemented this data with demographic information contained in the identification forms (Levandovski et al., 2015).

It is also important to mention an important report published by a reputable Research and Development (RAND, 2014) corporation. RAND argued that, although many organisations and individual researchers have conducted studies assessing patient satisfaction, none of these surveys applies to the ED setting, which has always had its peculiarities. In addition, the response rate of the surveys may depend on the data collection method. For example, Neumayr *et al.* (2016) used a mail survey to evaluate patient satisfaction with emergency medical services in Austria and Switzerland. Researchers used a tested, standardised questionnaire and sent it with an invitation to the patient sample. They also used a prepaid envelope and sent a reminder two weeks later to ensure a higher response rate. As a result, the response rate was 46.7%, which is relatively high for mail surveys of this kind (Neumayr *et al.*, 2016). A study by Chiu *et al.* (2014) has shown that face-to-face interviews generated higher response rates compared to hand-outs (self-administered surveys), although a difference in positive responses was not detected. More importantly, scholars have argued that interviews conducted with ED patients immediately upon discharge can capture their experience more accurately than any other data collection method (Chiu *et al.*, 2014).

There was a strong need to design a survey that could reflect the unique processes and demands of emergency medicine, thus allowing EDs to adjust to patients' needs based on their feedback. Therefore, RAND (2014) developed and tested three survey instruments that can potentially be used with ED patients. After extensive field-testing, analysis, and adjustment, RAND (2014) found four ways of measuring patients' experience from different angles: (1) accessing timely care, (2) communication about medicine, (3) general quality of communication, and (4) communication with patients prior to discharge. As summarised by RAND (2014), these measures should become the basis of the new instrument, which has not yet been released.

It should be noted that, given the unique nature of emergency medicine, it is important to develop and validate an instrument that reflects this uniqueness, or at least to determine the most applicable instruments in this setting. A literature review shows that, for now, few empirical studies have explored ED-specific questionnaires (Atari & Atari, 2015). There is a gap in research when it comes to using detailed, comprehensive instruments to assess patients' satisfaction with emergency services. This study aims to address this gap by exploring measurements that can be employed in the ED setting.

2.3 Organisation of the Portuguese health system

Taking into account the fact that our empirical research will be applied to the Portuguese setting, we need to understand how the health system is organised in this country. The Constitution of the Portuguese Republic recognises the right to health, and the Portuguese health system (PHS) has been created to comply with this fundamental principle. The main goal of the PHS is to protect the health and well-being of the population, ensure equal access to care services, and distribute resources so that all populations and locations can benefit from effective, timely care (Barros, Machado, & Simões, 2011; Tavares, 2017). The main purpose and nature of the PHS have not changed significantly since the 1970s. The system offers universal public coverage to all residents,

although recently, some new measures have been taken to ensure the sustainability of the system. The Ministry of Health regulates the system, and it is responsible for managing the National Health Service and developing health policies (Tavares, 2017). Moreover, the Health Regulatory Entity (HRE), an independent public body, regulates public, private, and social care providers.

The Ministry of Health is responsible for the development of health policy and for overseeing its implementation (Simões et al., 2017). The body is also responsible for the regulation and inspection of private medical facilities, regardless of whether they are part of the NHS. As noted by Simões *et al.* (2017), rulings made at the government level are sometimes discussed with partners, but this consultation is not obligatory. The evaluation of policies and their adjustment are not systematic, either. The scope of the Ministry of Health is limited by the Ministry of Finance, which approves the budget and the creation of new positions in the NHS.

Tavares (2017) has divided the history of the PHS's development into several stages. Thus, in a period between 1985 and 1995, there was a significant expansion of the private and non-profit sectors, which may be explained by the public system's inability to cater to the needs of all citizens. At the same time, the decentralisation of the national health system had also begun, and the number of public hospitals increased. Between 1995 and 2000, hospital networks were reorganised, and the Ministry of Health promoted the emergence of healthcare services contracting (Tavares, 2017).

In the next five years, the health regulatory authority was established, and by 2013, many new organisational changes were implemented. For instance, the bottom-up approach to managing primary care was introduced, and hospitals focused more on incorporating best practices (Simoes, Augusto, Fronteira, & Hernandez-Quevedo, 2017; Tavares, 2017). Although many measures have been taken to improve the performance of the health system (e.g., the introduction of public private-partnerships [PPPs] and improved management structures), the population has widely criticised some of these measures. There were concerns about the quality of care and the closure of many healthcare facilities across the country (Barros et al., 2011). Moreover, the PHS has been criticised for rising healthcare expenditures; further reforms are underway that would address the remaining issues.

2.3.1 Structure and governance

The Portuguese health system consists of three overlapping systems:

- The National Health Service (*Serviço Nacional de Saúde*, SNS)
- Special public and private sub-systems (special social health insurance) based on employee/employer contributions
- Voluntary private health insurance

The SNS, which was established in 1979, provides access to healthcare for every citizen irrespective of socioeconomic status. This system includes different levels of care, such as disease prevention, diagnosis, education, treatment, and rehabilitation (Rocha, 2015). Moreover, NHS hospitals provide acute care as well as mother and childcare. In the last decade, a series of reforms has been implemented to widen the spectrum of services to include medium-term care and

rehabilitation, palliative care, and other services. Although the NHS incorporates most health facilities, private provision is also available, and citizens can access quality care in clinics, have laboratory tests and imaging performed, receive rehabilitation services, and so on (Simões et al., 2017).

The legacy of the fragmented social insurance system that was in place before 1979 is still visible in Portugal, as additional insurance schemes are still popular (Oliveira & Pinto, 2005). These schemes were not integrated into the NHS system and currently serve as an alternative to public healthcare. Representatives of certain professions or organisations are mandatorily covered by this type of insurance. According to the statistics, nearly 25% of Portuguese people use these health sub-systems, which are based on employee/employer contributions. Civil servants, bank employees, and insurance companies' employees greatly benefit from this additional coverage (Barros et al., 2011). Oliveira and Pinto (2005), however, have noted that the co-existence of the NHS and additional insurance programmes undermines the very principle of equality. The problem is that many families enjoy multiple coverage opportunities, while others only have access to the NHS. These privileged families are usually more socioeconomically advantaged, while those who have limited coverage typically belong to the low-income group.

Finally, there are also voluntary health insurance schemes. Although they are considered complementary and are not regulated like the NHS or health sub-systems, they still fall under the supervision of the Ministry of Health (Monteiro et al., 2017). An insured person may receive services at medical institutions with a previous convention with his or her insurer or pay for the services at any clinic or hospital, which receives reimbursement later. More than 15% of the population uses voluntary insurance, but its popularity increased when the NHS failed to meet the needs of a diverse population (Simões et al., 2017).

Currently, the structure and nature of the Portuguese healthcare system are not well defined. There is a variety of different medical facilities in addition to those belonging to the NHS. For example, private care providers, which have a supplementary role, provide dental, diagnostic, and therapeutic services but cannot replace NHS hospitals altogether (Simões et al., 2017). Azores and Madeira have separate regional health services because the NHS does not cover these autonomous regions. There are also non-profit religious organisations, which were the main providers of health services in the past. Today, they run only a few hospitals in the country and focus mainly on long-term care provision. Moreover, specific attention should be paid to health centres (*centros de saude*) because they play an important role within the Portuguese healthcare system (Redondo & Santana, 2011). There are many such medical facilities across the country where patients typically seek treatment, and most doctors within them are based where citizens register for public healthcare. Health centres normally provide doctor/GP services, maternity and childcare services, dental services, and even non-life-threatening emergency care.

2.3.2 Emergency care in Portugal

As this thesis is dedicated to emergency care, a brief description of emergency care in Portugal is necessary. First, there are three main types of EDs in the country, as Vaz, Ramos, and Santana (2014) have explained:

- Polyvalent EDs (which deal with the most complex cases)
- Basic EDs (which address simple cases)
- Medical-surgical EDs (which take cases of medium complexity)

In other words, the function of these three types of ED depends on the cases they handle, their resources (technology, human resources, budget, etc.), and the reimbursement they receive (Padilha & Coimbra, 2015; Vaz et al., 2014).

Emergency services are provided within the Integrated System of Medical Emergency (SIEM), which is under the supervision of the Ministry of Health. The services are coordinated by the regional urgent patients' guidance centres (CODU), which also operate at the sea (Padilha & Coimbra, 2015). There is also a possibility of transporting high-risk new-borns to specialised departments where they can receive timely, high-quality care. Patients requiring emergency care are transported to hospitals using ambulances, motorcycle ambulances, fly cars, and other means. Madeira and Azores have their own emergency services and bodies that regulate their operation. In general, despite the fragmented nature of the healthcare system in Portugal, emergency services are accessible and available to the population irrespective of insurance status and location.

Researchers have studied patient satisfaction with emergency care as one of the most important indicators of the quality of services (Jalali et al., 2016). For instance, Fonseca (2013) has conducted a mixed methods study to learn about Portuguese patients' perceptions. The results reveal that all ED patients can be divided into two groups: those who are satisfied with almost everything and those who are dissatisfied and evaluate the quality of care as poor. As Fonseca (2013) has argued, these findings are valuable for ED administration because they may help develop more patient-centred policies based on the type of patient. In Portugal, understanding patient satisfaction in the ED is even more relevant because it is the European country with the highest number of ED visits per capita (Berchet, 2015), and it has a high rate of non-urgent visits (Monitorização do SNS, 2016).

Ramos and Paiva (2017) have argued that much still needs to be done to make EDs in Portugal more effective. The researchers have explained that there is a trend in European countries to use the dedicated model of staffing in EDs. According to this model, EDs are staffed with a team of competent, experienced doctors who work there full-time. In contrast, many EDs in Portugal still use the classic model, that is, they engage inexperienced, young physicians from different departments who simply take turns. Naturally, this approach adversely affects patients who cannot receive professional help. In their study, Ramos and Paiva (2017) have shown that hiring a dedicated team of doctors could help reduce costs and improve both productivity and patient satisfaction with emergency services. Researchers believe that it is time to transform Portuguese emergency care from

an 'area of competence' to a separate medical specialty with its own requirements and standards (Ramos & Paiva, 2017, n.p.).

Ramos and Paiva (2017) have argued that, even though not all emergency cases require extensive skills, all types of EDs should have competent staff able to differentiate between severe and simple injuries and transfer patients to higher-level EDs if necessary. Polyvalent EDs, which serve approximately one million patients annually, should be staffed with doctors and nurses who can work with sophisticated equipment and handle the most difficult cases. Their skills and knowledge are critical for saving lives and improving patient satisfaction with services. However, basic EDs should have competent doctors, as well, because even seemingly simple cases can become life-threatening or dangerous for patients (Ramos & Paiva, 2017).

It appears that some positive changes are nevertheless underway in Portuguese EDs. Correia *et al.* (2014) have discussed how the implementation of 'In-Hospital Medical Emergency Teams' (METs) could enable better treatment for patients in this clinical setting. According to the researchers, METs could help detect early signs of deterioration in patients' conditions and help ED staff initiate timely treatment. In a more recent study, Silva, Saraiva, Cardoso, and Aragão (2016) have shown that METs could indeed help improve immediate patient outcomes. The researchers conducted a retrospective cohort study at one Portuguese hospital and found that the implementation of METs resulted in a decrease in hospital mortality and better treatment for patients. Along similar lines, Barbosa *et al.* (2016) have noted that METs can significantly improve patient outcomes; thus, there is a need to invest in the education and training of healthcare professionals to enable them to work with the new standards of practice.

To summarise, patient satisfaction is a highly subjective notion affected by multiple factors across different domains, which challenges its measurement and the ways to address it in both research and practice. For the past three decades, research in patient satisfaction has investigated patient satisfaction through multiple lenses, including consumer satisfaction, organisational management, and operational services management. Along with the emergence of new evidence and the discovery of new dimensions, the measurement of patient satisfaction has changed and expanded. However, the existing body of knowledge still lacks a comprehensive approach to studying and addressing patient satisfaction in both research and practice.

3. Methods of the quantitative phase of research

3.1 Questionnaire framework and pilot testing

First, an exploratory phase of research was necessary in order to examine the nature of EDs and identify the major gaps that could be addressed in the quantitative phase of research. Thus, after finishing the analysis of the qualitative phase of research, we proceeded develop the questionnaire. As a solid base for our conceptual model and the questionnaire, we considered the methodology used in the Índice Nacional de Satisfação do Cliente (ECSI–Portugal), which is based on structural equation modelling (SEM) with latent variables (ECSI, 2017; Vilares & Coelho, 2005; Pereira et al., 2009), along with the American Customer Satisfaction Index (ACSI) model, which consists of indices for drivers or causes of satisfaction (antecedents), satisfaction, and outcomes of satisfaction (consequences) with cause-and-effect relationships (ACSI, 2008).

In developing the questionnaire, we also took into account the Instrumentos de Avaliação da Qualidade Hospitalar – Urgências Adultos (IAQH-UA), a questionnaire that aims to measure various aspects of satisfaction. This measuring instrument was designed, developed, and tested by the Centro de Estudos e Investigação em Saúde da Universidade de Coimbra (Universidade de Coimbra, 1992; CEISUC, 2003). In addition, we also reviewed the fourth National Health Interview Survey (Inquérito Nacional de Saúde) prepared by the Instituto Nacional de Saúde Dr. Ricardo Jorge/Instituto Nacional de Estatística (SNS, 2009), as well as the survey used to investigate aging processes in Portugal (Cabral, Ferreira, Silva, Jerónimo, & Marques, 2013).

Our questionnaire was adapted, and other questions were added that enabled us to identify important issues according to our conceptual model. The appropriateness of the questionnaire was tested by administering the instrument to a small subset of the study's population by launching a pilot survey with 20 interviewees. A pilot test is recommended to gauge the appropriateness of the overall study and instrument design, including aspects such as time to complete, the clarification of questions and language, and whether the response options are exhaustive and mutually exclusive (Cooper & Schindler, 2003). For each question in the questionnaire, we created a space where interviewees could comment on each question. This allowed us to receive valuable feedback about various aspects of the questionnaire, analyse the comments, make adjustments to the instrument design and its administration, and improve the questionnaire in terms of the scale of the questions and their formulation and formatting prior to proceeding with the full study.

3.2 Sample design

The investigation period for the study was January 1 through December 31, 2016. Prior research on access to, the evaluation of, and attitudes toward the health system in the Portuguese population, has assessed how long memories of hospital experiences are valid, depending on the type of services and care received. In these studies, the experience in the ED was shown to be recalled for up to three years (the most recent experience), which supports our temporal choice about the research period (Cabral & Silva, 2009; Cabral & Silva, 2010; Cabral, Silva, & Mendes, 2002). The decision to cover a full year aimed to

take into account the effects of seasonality, which affect the use of emergency services and the type and incidence of different illnesses. The reasons people seek emergency services, the organisation of services, and the variability of waiting times, among other factors, may influence patients' behaviours and attitudes when they access the hospital's ED.

In order to calculate our sample size, the hospital provided us with a list of 55,903 patients who, between January 1 and December 31, 2016, went to the ED at least once in the public hospital under investigation in Lisbon, which is part of Centro Hospitalar Lisboa Ocidental E.P.E. We created our sample distribution as demonstrated in Table 3.1.

Table 3.1. Sample distribution

Margin of error	5%
Confidence level	95%
Response distribution	50%
Population size	55,903
Sample size	382

In terms of the numbers selected, the sample size n and margin of error E are given by the following formula:

$$x = Z(c/100)^2 r(100-r)$$

$$n = N x / ((N-1)E^2 + x)$$

$$E = \text{Sqrt}[(N-n)x / n(N-1)]$$

where N is the population size, r is the fraction of responses, and $Z(c/100)$ is the critical value of the confidence level c .

We decided to choose the sample distribution with a 5% margin of error and 95% confidence interval. The total sample size included 382 patients from a random probabilistic sample selection corresponding to processes between 1 and 55,903 patients to select 382 individuals who would be part of a scenario sample size that ensured the statistical representativeness of the ED patient universe. In order to control the sample size, we used the following patient data given to us by the hospital: episode number (case number), name, gender, age, home address, and telephone number.

A sample distribution by age and gender was calculated using several steps. First, we calculated the distribution of the universe with a total number of 55,903 patients. Second, we calculated an ideal distribution from the random probabilistic sample selection of 382 individuals. Our gender distribution was ultimately sufficiently close to an ideal distribution with female prevalence.

Table 3.2. Distribution of gender

Gender	Ideal distribution	Our distribution
Female	56.9%	61.3%
Male	43.1%	38.7%
Total sample	55,903	382

Our age distribution was harder to control, and here we observed minor discrepancies in nearly all age groups, with a prevalence of the 31–40 group of patients in our case and the 18–30 group of patients in the case of ideal distribution, while the 41–50 age group and 80+ age group were sufficiently close to an ideal distribution.

Table 3.3. Distribution of age

Age	Ideal distribution	Our distribution
18-30	18.9%	14.9%
31-40	14.9%	19.1%
41-50	14.3%	14.4%
51-60	13.2%	17.6%
61-70	12.7%	9.2%
71-80	13%	9.8%
80+	13%	14.7%

3.3 Collection and processing of data

Data collection was conducted from May 18, 2017 through November 30, 2017. Respondents under 18 years old who were unable to answer the questions, who resided outside Portugal, and who had psychiatric illnesses were excluded from the research. In order to participate in the study, the respondents had to be Portuguese-speaking, of either gender, at least 18 years old, a resident of Portugal, and able to answer the questions. Other participants from the list replaced those who, according to relatives, were determined to be deceased.

Before sending the questionnaire to patients, they were contacted by telephone to obtain permission to send it, and their agreement to participate in the research was provided through mail or e-mail. When a particular individual had more than one ED admission in the year under study, we chose the most recent according to the date of admission. Telephone calls were made three times during the day at different times and, if unsuccessful, the patient was classified as not responsive. If he or she did not reply after three phone calls or did not want to respond to the questionnaire, this person was substituted for the first one from the end of the list until the required sample size was reached. People involved in making the telephone calls received training and information about the research and the nature of the survey. Respondents were also informed about the nature of the survey.

Data for this research comes from a questionnaire collected by mail or e-mail according to the respondent's preference. In the case of e-mail distribution of the survey, we used Qualtrics Software to collect the data online. If an error in the e-mail address occurred, the patient was contacted again so that we could verify it. In the case of mail distribution, the questionnaire was sent to the home address with enclosed prepaid envelopes to be returned to the Escola Nacional de Saúde Pública (ENSP). The home address in this case was verified. In both versions (paper or digital), the format was exactly the same, as was the consent form for participation in the research.

Each questionnaire sent in the paper format was attributed a special code, an identification number on the last page of the questionnaire, to correspond to the patient's identity and a clinical record number (episode). This number was the only way to correlate the responses of the questionnaire with a participant's clinical records. The envelope with the questionnaire included information about the research, the purpose of the study, the importance of patient opinion, assurances of the confidentiality and anonymity of the information gathered, the guarantee that it would be used only for this study, and an estimate of approximately 20 minutes to respond to the questionnaire, depending on the patient's

specificities. The same information was available online in terms of e-mail distribution prior to starting the questionnaire. Previous research has stressed the importance of not having the questionnaires administered by health professionals or other healthcare organisation staff in order to avoid response bias and increase the reliability and validity of responses (Kuisma, Määttä, Hakala, Sivula, & Nousila-Wiik, et al., 2003).

During the period of data collection, we made a total of 4,413 telephone calls, which includes only the first call attempts and excludes all subsequent repeat calls. Those who did not have a telephone number in our list were excluded prior to starting the telephone calls. In total, 2,512 (56.9%) individuals agreed to participate in the survey; among the remaining 1,901 (43.1%) who did not participate, 333 (7.5%) individuals refused to participate because they could not do so for various reasons or did not want to participate in the survey, 157 (3.6%) had already died, 43 (1.0%) were ineligible per the exclusion criteria as another person answered the phone call, 1,368 (31.0%) did not respond to the telephone call or were those with their phones off and with unassigned, invalid, paused, and incomplete phone numbers. Eventually, 1,553 patients agreed to participate and gave permission for the questionnaire to be sent by mail. Among them, only 506 questionnaires were sent due to the study's financial constraints. We received 143 questionnaires back, and 363 were not returned.

With respect to the e-mail distribution, only 959 patients agreed to participate and gave permission to send the questionnaire by e-mail. Among them, 340 responded to the questionnaire online, and 619 did not.

Those who did not respond and did not return the questionnaire were contacted again and asked to complete it. In the case of an incorrect home address, the respondent was contacted again and then sent the questionnaire. The same was done with e-mail distribution; after a certain period of time, the respondent was contacted again through e-mail and asked to respond to the online questionnaire.

The total number of questionnaires obtained (483) exceeded the total number of a calculated necessary sample size (382), resulting in the exclusion of 101 incomplete or poorly completed questionnaires in which the number of questions answered was low, as well as questionnaires that were not returned in time (i.e., after analysis of the data had already started). When we obtained a necessary sample size of 382 individuals, the percentage of respondents (among 382 individuals) who completed online questionnaires used for analysis (75.9%) was significantly higher than the percentage of respondents (among 382 individuals) who completed mail surveys (24.1%).

All the data were then exported to the statistical software program SPSS for further analysis. The data analysis included several steps: descriptive statistics, in order to observe the general statistics of the results; correlation coefficients, in order to run bivariate correlations between all relevant variables; ANOVA and T-test, in order to observe the differences between various categories; multiple regression analysis, in order to identify key predictors that have a statistically significant relation with satisfaction and perceived quality of healthcare; stepwise multiple linear regression analysis, in order to test our conceptual model through various mediation and moderation models; and SEM, in order to test the final conceptual model using path analysis (in the case of SEM, we used a software with the package lavaan).

3.4 Parametric and non-parametric tests for sampling

In order to test demographic differences among the participants who were contacted and invited to participate in the study ($n=4413$), we conducted two statistical tests comparing age and gender across five possible categories: 1) individuals who agreed to participate in the survey; 2) individuals who refused to participate because they could not do so for various reasons or did not want to participate in the survey; 3) individuals who had already died; 4) individuals who were ineligible per the exclusion criteria, as another person answered the phone call; 5) individuals who did not respond to the telephone call, those with phones turned off, as well as those with unassigned, invalid, paused, and incomplete phone numbers. A one-way ANOVA with age revealed that there were statistically significant differences between these categories, $F(4,4408)=73.17$, $p \leq 0.01$. More specifically, post-hoc tests revealed that participants who agreed to participate ($M=56$, $SD=21$) were younger than those who refused or did not want to participate ($M=63$, $SD=21$), those who died ($M=81$, $SD=9$), and those whose phone call was answered by another person ($M=63$, $SD=22$). According to Smith (2008), more educated, more affluent, and younger people are more likely to participate in surveys than less educated, less affluent, and older people. Post-hoc tests also revealed that those who agreed to participate did not differ in age from those who did not respond to the telephone call ($M=53$, $SD=22$). A chi-squared test with gender revealed that there were no statistically significant differences in gender across these five categories of participants (chi-squared(4)=3.04, $p=0.52$).

In order to test the same demographic differences, but among the participants who agreed to participate by mail ($n=1553$), we conducted two statistical tests comparing age and gender across three possible categories: 1) individuals who responded to the questionnaire; 2) individuals who did not respond to the questionnaire; and 3) individuals who did not have a chance to respond to the questionnaire because we did not send the questionnaire due to the study's financial constraints. Testing for differences between respondents and non-respondents may help identify potential bias. Our results show that there were no significant differences regarding either age ($F(2,1550)=1.55$, $p=0.21$) or gender (chi-squared(2)=3.75, $p=0.15$) in these categories. An example of a study that tested similar differences is that of Abolfotouh and colleagues (2017), who had a response rate of 65%. However, the difference between respondents and those who did not respond was not statistically significant in terms of gender or age ($p>0.05$).

Ultimately, to test the same demographic differences among those who agreed to participate by e-mail ($n=959$), we conducted two statistical tests comparing age and gender between two possible categories: individuals who responded to the questionnaire online and those who did not respond to the questionnaire online. The results show that there are significant differences regarding age ($F(1,957)=0.14$, $p \leq 0.01$); participants who responded to the questionnaire ($M=48$, $SD=19$) were significantly older than those who did not respond ($M=44$, $SD=20$). Despite this statistically significant difference, we note that the groups differ only by four years, which does not represent a substantial difference. The results also show significant differences in gender (chi-squared(1)=11.12, $p \leq 0.01$) but, again, within the same pattern

of results with women responding more than men across both categories (women responding=24%, women not responding=36%; men responding=12%, men non responding=27%).

3.5 Instrument of data collection

The questionnaire was developed using multi-item measurement scales, as patient satisfaction and related constructs were seen as latent variables, that is, multi-dimensional constructs that are not directly observable. The questionnaire consisted of 75 questions and provided additional space for comments and suggestions at the end if desired. The questionnaire also contained some open-ended questions to allow patients to express their opinion, especially an option when an appropriate choice was not found in the list of proposed answers. Patients were informed in the questionnaire about keeping in mind only their last visit to or experience in the ED.

The questionnaire evaluated satisfaction in different dimensions. The first set of general questions referred to the last experience in the ED, including the last time in the ED, past experience in the ED, the frequency of experience in 2016, the last reason for coming to the ED, the duration of symptoms or complaints before going to the ED, the means of transport used to reach the ED, and the reason for using the ED.

Another set of questions focused on the ED itself, with issues regarding admission to the ED and the triage process: accessibility and availability; any help received in terms of orientation within the ED; the level of busyness of the ED in terms of the number of people, facilities, and physical conditions; privacy; the evaluation of staff at the registration counter; the availability of any clinical information on paper; the waiting time for triage; the colour assigned and agreement with the colour assigned; the evaluation of staff conducting the triage; the waiting time after triage; the waiting location after triage; information about possible delays; and explanations for delays. A third section related to the evaluation of the ED personnel: doctors, nurses, auxiliary staff, or the lack of any type of staff. A fourth set of questions referred to examinations and/or tests: type of examinations and/or tests, the waiting time for examinations and/or tests, the waiting time to be called back by the doctor after the examinations and/or tests, and the evaluation of health technicians responsible for examinations and/or tests. A section on treatment included the evaluation of the treatment received, and a hospitalisation section included the length of hospitalisation and the hospital destination. An accompanying set of questions related to the evaluation of the way the patient's relatives or friends were treated referred to the permission to be accompanied and communication with relatives or friends.

The final section concerned the discharge process: the discharge note, the explanation in case there was no discharge note, the waiting time from when the patient was informed about discharge until he or she left the hospital, and the total time spent in the ED. Respondents were asked about payment of a fixed user charge and were asked to answer some questions concerning payment perceptions of a fixed user charge.

Key questions referred to expectations, satisfaction, evaluation of the quality of healthcare, confidence/trust, and complaints. The last group related to the evaluation of the state of health, the

existence of illness or a chronic health condition, health issues that require follow-up, psychological questions about the satisfaction with life and the level of happiness, and other questions, such as those concerning the district and municipality, nationality, gender, age, family situation (marital status), number of people in the household, the existence of health insurance, another health system/sub-system, employment situation, level of education, occupation/profession, and monthly household income. In addition to those mentioned above, some variables were measured with multiple indicators, which are represented in Table 3.4.

Table 3.4. Organisation of variables (multiple indicators)

Accessibility and availability	- Location within the city - Orientation within the ED - Distance between the different areas of the ED - Availability of equipment and of specialist staff to conduct tests - Overall evaluation of accessibility and availability
Facilities and physical conditions	- Conditions, comfort, and convenience of the waiting-room - Conditions, comfort, and convenience of the observation room - Conditions, comfort, and convenience of the facilities where tests were conducted - Age and operation of equipment - Cleanliness and hygiene of the facilities - Overall evaluation of facilities and physical conditions
Admission to the ED (staff at the registration counter)	- Friendliness and helpfulness of staff at the registration counter - Competence and professionalism of staff at the registration counter - Overall evaluation of the performance of the staff who saw the patient
Triage process (staff conducting the triage)	- Friendliness and helpfulness of the nurse conducting the triage - Competence and professionalism of the nurse conducting the triage - Overall evaluation of the performance of the nurse conducting the triage
Doctor(s)	- Friendliness and helpfulness of the doctor(s) - Competence and professionalism of the doctor(s) - How the doctor explained your health problem to you (diagnosis) during the examination - The explanations given by the doctor on the exams performed and the objectives of the treatment to be undergone - The information provided on precautions to be taken, recommendations and how to take or apply the medications

	prescribed after leaving hospital (written or oral)
Nursing personnel	- Overall evaluation of the performance of the doctor(s) - Friendliness and helpfulness of the nurses - Competence and professionalism of the nurses
Auxiliary staff	- Overall evaluation of the performance of the nurses - Friendliness and helpfulness of the auxiliaries - Competence and professionalism of the auxiliaries
Examinations and/or tests (health technicians in question)	- Overall evaluation of the performance of the auxiliary staff - Friendliness and helpfulness of the health technicians in question - Competence and professionalism of the health technicians in question - Overall evaluation of the quality of the services provided with examinations or tests

According to our conceptual model, drivers or causes of satisfaction (antecedents) consist of: *global perceptions*, which refer to the perceptions about the ED as a whole in terms of accessibility and availability, facilities and physical conditions, privacy, help in terms of orientation within the ED, and busyness of the ED in terms of the number of people; *perceived quality dimensions*, which are related to dimensions such as admission to the ED, the triage process, waiting time, ED personnel (staff at the registration counter, staff conducting the triage, doctors, nurses, auxiliary staff, and health technicians responsible for examinations and/or tests), examinations and/or tests, treatments, hospitalisation, the process of accompanying the patient by relatives or friends, the discharge process, and the payment of a fixed user charge; and *expectations*, to assess whether the patients' expectations are met and to what extent.

Patient satisfaction includes the evaluation of *satisfaction* in general as well as the *quality of healthcare*. Outcomes of satisfaction (consequences) integrated several dimensions that may have a positive or negative outcome: *payment perceptions* refers to the evaluation of patients' perceptions regarding the current payment of a fixed user charge that may influence the quality of the service and treatment, as well as perceptions regarding the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions; *confidence/trust* in the ED the next time it is necessary; and *complaints*, which identified patients who complained and the reason for the complaint.

Controlling factors with potential moderating effects on the relationships between patient satisfaction, its antecedents, and consequences incorporated *specific patients' characteristics* regarding the last visit to the ED, past experience in the ED, frequency of ED experiences in 2016, the last reason for coming to the ED, the duration of symptoms or complaints before going to the ED, the means of transport used to reach the ED, the reason for using the ED, the existence of illness or a chronic health condition, health issues that required follow-up, the existence of health insurance, and the existence of a health sub-system. Another important factor related to evaluation of the *state of health/health status and*

psychological state concerned the level of satisfaction with life and the level of happiness. The last group of *social and demographic attributes* included widely used characteristics such as district and municipality, nationality, gender, age, family situation (marital status), number of people in the household, employment situation, level of education, occupation/profession, and monthly household income.

Table 3.5. Organisation of variables

Antecedents (drivers or causes of satisfaction)

Global perceptions

- Accessibility and availability
- Facilities and physical conditions
- Privacy
- Any help in terms of orientation within the ED
- Busyness of the ED in terms of the number of people

Perceived quality dimensions

- Admission to the ED
- Triage process
- Waiting time
- ED personnel (staff at the registration counter, staff conducting the triage, doctors, nurses, auxiliary staff, health technicians responsible for examinations and/or tests)
- Examinations and/or tests
- Treatments
- Hospitalisation
- Process of accompanying the patient by relatives or friends
- Discharge process
- Payment of a fixed user charge

Expectations

- Meeting expectations

Patient satisfaction (the main variable)

Patient satisfaction

- Level of satisfaction
- Evaluation of quality of healthcare

Consequences (outcomes of satisfaction)

Payment perception

- Likelihood of the current payment of fixed user charge to influence the quality of the service and treatment
- Agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions

Confidence/Trust

- Confidence/trust in the ED the next time it is necessary

Complaints

- Identification of patients who complained
- Reason for complaint

Controlling factors

Specific patients' characteristics

- Last time in the ED
- Past experience in the ED
- Frequency of ED experiences in 2016

	- Last reason for coming to the ED
	- Duration of symptoms or complaints before going to the ED
	- Means of transport used to reach the ED
	- Reason for using the ED
	- Existence of illness or a chronic health condition
	- Health issues that require follow-up
	- Existence of health insurance
	- Existence of a health sub-system
State of health/health status	- Evaluation of state of health
Psychological state	- Level of satisfaction with life
	- Level of happiness
Social and demographic attributes	- District and municipality
	- Nationality
	- Gender
	- Age
	- Family situation (marital status)
	- Number of people in household
	- Employment situation
	- Level of education
	- Occupation/profession
	- Monthly household income

Most customer satisfaction surveys use questionnaires that are essentially based on Likert scales or Likert-type numerical scales. Likert scales (Likert, 1932) are pure semantic scales that usually use a five- or seven-point range. Items and scales measured in Likert format are often considered qualitative measures (e.g., Jamieson, 2004). However, empirical evidence shows that these can actually be considered quantitative measures (Velleman & Wilkinson, 1993; Carifio & Perla, 2007). First, in Likert items and scales, the response format (i.e., the grammatical dimension) is inseparable from its meaning (i.e., the semantic dimension); thus, differences between levels (e.g., between ‘agree’ and ‘strongly agree’ and between ‘disagree’ and ‘strongly disagree’) have the same semantic meaning (i.e., the same agreement value) and, therefore, the interval between numbers is equal (Carifio & Perla, 2007). Second, measures with traditionally quantitative response formats (e.g., rulers and measuring tapes) are highly correlated with Likert scales (e.g., Vickers, 1999). Third, even if the Likert scales are assumed to be ordinal qualitative, the F test statistic used to compare models (e.g., in ANOVAs, linear regressions) is incredibly robust to violations at the measurement level, so statistically, it is not justified to lose power of analysis through the use of non-parametric tests (Glass, Peckham, Sanders, 1972). Finally, the Likert-type response format is often used to generate a global composite scale (an aggregate measure composed of several items); this type of composite scale has emergent properties that originate from the set of items with their own theoretical and metric significance.

Most of the questions in our survey asked for responses on a one to 10 rating scale. The respondents received a clear explanation about this rating scale in the questionnaire in order to avoid confusion. In terms of measuring customer satisfaction, the 10-point numerical scale was introduced in the framework of the ACSI and has been generalised to most national customer satisfaction indexes all over the world (e.g., the European Customer Satisfaction Index), thus becoming one of the most important standards (Fornell, Johnson, Anderson, Cha, & Bryant, 1996). In addition, we used other types of scales, such as multiple-choice questions, yes/no questions, and a five-point scale from ‘very good’ to ‘very bad’. The questionnaire had a guide to follow when answering the questions, and the online questionnaire had an automatic filter to skip to the next question or to skip a certain question in case a patient did not answer a question because it was not applicable. The same guide was provided in a paper format with proper explanations.

3.6 Clinical attributes

Clinical records (recorded data) were extracted from a computerised database provided by the hospital. In order to connect the results from their questionnaires to patients’ clinical records and to investigate the relationship between objective data (which were taken from the clinical records) and perceptions (which were taken from the survey data), we considered the following variables (31 in total) from the hospital database: *‘episode number’*, *‘admission service’*, *‘gender’*, *‘health system, sub-system (of the patient)’*, *‘age (years)’*, *‘reason for administrative admission’*, *‘admission date’*, *‘admission time’*, *‘start date of triage’*, *‘triage start time’*, *‘end date of triage’*, *‘triage end time’*, *‘triage reason’*, *‘colour assigned in triage’*, *‘accompanying yes/no’*, *‘triage referral’*, *‘date of medical care’*, *‘medical care time’*, *‘discharge destination’*, *‘hospitalisation service’*, *‘diagnosis code’*, *‘diagnosis’*, *‘discharge date’*, *‘discharge time’*, *‘mobility on discharge’*, *‘nationality’*, *‘district of residence’*, *‘municipality of residence’*, *‘parish of residence’*, *‘type of exemption’*, and *‘date of last emergency visit’*.

We then created additional variables based on the data obtained from the questionnaire and from the clinical records for a more complete analysis; these were as follows: *‘availability of exemption’*, *‘availability of health system, another sub-system (of the patient)’*, *‘number of chronic illnesses’*, *‘classification of chronic illnesses’* according to the International Classification of Diseases (WHO, 2007), and *‘number of times in ED in 2016’*. Waiting time variables were calculated and attributed the same scale as in the questionnaire for further analysis; these were as follows: *‘waiting time between admission (arrival) and start of triage’*, *‘waiting time between start of triage and end of triage’*, *‘waiting time between end of triage and seeing a doctor’*, and *‘total time spent in the ED’*.

3.7 Ethical issues

Before beginning the study, authorisation to administer the questionnaire was obtained, and the study received a favourable approval from the Ethics Committee and the Board of Directors and Administration of Centro Hospitalar de Lisboa Ocidental E.P.E. (CHLO). This study was conducted in

compliance with the ethical principles set out in the Declaration of Helsinki (World Medical Association, 2013).

At the beginning of this phase of research, all patients interviewed were asked to provide verbal and written consent of their participation. Patients were given a form to sign that would confirm their consent to participate in the research along with the questionnaire sent by mail or e-mail. Patients were provided with the contact information of the main researcher in case of any questions or doubts. Patients were informed that all data gathered was to be confidential and anonymous and would be used only in the framework of research. They were assured that all data gathered would be strongly protected with a password, that the given research would not have any commercial value, and that no information would be disseminated to third parties. Participation was voluntary and, at any time, the participant had a right to interrupt or stop completing the survey without any explanation or penalties. The participants were informed they would not receive direct benefits from the research.

4. Descriptive analysis of the data and exploratory factor analysis

4.1 Antecedents (drivers or causes of satisfaction)

First, we sought to know the respondents' opinions regarding the services they received at the ED and their evaluation of different aspects of it. This was broken down into various stages: global perceptions, perceived quality dimensions, and expectations.

4.1.1 Global perceptions

We investigated the participants' level of satisfaction regarding the location of the hospital and ED within the city. The findings indicated a relatively high level of satisfaction ($M=8.20$, $SD = 1.96$). Further, we asked the participants to rate their level of satisfaction with their orientation within the ED through signs or help from staff members. The level of satisfaction was still good, though the mean was slightly reduced ($M = 7.44$, $SD = 2.05$). The participants acknowledged that they were quite satisfied ($M = 7.46$, $SD = 1.92$) with the accessibility of different areas.

Table 4.1. Descriptive statistics related to accessibility and availability.

	n	Mean	Min	Max	SD
Location of the hospital and emergency department within the city	379	8.20	1	10	1.96
Orientation within the emergency department	374	7.44	1	10	2.05
Distance between the different areas of the emergency department	363	7.46	1	10	1.92
Availability of equipment and of specialist staff to conduct tests, blood tests	366	7.32	1	10	2.19
Overall, accessibility and availability	375	7.49	1	10	2.08

Further, the participants indicated that they were quite satisfied ($M=7.32$, $SD = 2.19$) with equipment and specialist staff availability. In general, the participants were also quite satisfied ($M = 7.49$, $SD = 2.08$) with the overall accessibility of the hospital, the emergency department, and the availability of the equipment and specialist staff.

Due to the accessible nature of the ED, 79.7% (of 369) of the participants indicated that they did not require any help in terms of orientation. This was in consideration of their agreement that the ED was very busy or too busy (39.5% or 25.3%, respectively, of 372).

Table 4.2. Descriptive statistics related to the busyness of the ED, in terms of the number of people (users/patients).

	n	%
Busyness of the emergency department, in terms of the number of people (users/patients)		
Not very busy	21	5.6
Normal number of people	110	29.6
Very busy	147	39.5
Too busy	94	25.3
Total	372	100.0

Regarding the conditions of the waiting room in the ED, the participants were neither satisfied nor dissatisfied with its convenience or comfort ($M=5.07$, $SD = 2.43$). Comfort in this sense was considered in terms of the interior design including lighting, ambience, and temperature, and in the services offered, such as the access to beverages and food. In terms of the observation room, the participants indicated that they were fairly satisfied with its convenience and comfort ($M=6.17$, $SD = 2.31$). Further, more participants were fairly satisfied with the comfort and the convenience of the rooms where the tests were conducted ($M=6.68$, $SD = 2.15$). For the observed conditions of the equipment, the

participants were still fairly satisfied ($M = 6.81$, $SD = 2.06$). They were also fairly satisfied with the cleanliness and hygiene of the observed facilities ($M = 6.72$, $SD = 2.37$). Based on these attributes, the overall satisfaction with the observed physical conditions and facilities was merely fair ($M = 6.48$, $SD = 2.13$).

Table 4.3. Descriptive statistics related to facilities, physical conditions and privacy.

	n	Mean	Min	Max	SD
Conditions, comfort, and convenience of the waiting-room	371	5.07	1	10	2.43
Conditions, comfort, and convenience of the observation room	379	6.17	1	10	2.31
Conditions, comfort, and convenience of the facilities where tests were performed	363	6.68	1	10	2.15
Age and operation of equipment	339	6.81	1	10	2.06
Cleanliness and hygiene of the facilities	377	6.72	1	10	2.37
Overall, the facilities and physical conditions of emergency department	376	6.48	1	10	2.13
The way privacy was safeguarded	372	7.27	1	10	2.41

We also asked the participants to indicate their level of satisfaction with privacy in the ED. This was deemed necessary for a number of reasons. First, the patients previously indicated that the department is quite busy. Second, as public hospitals are accessible and are the choice of the majority of the population, they are bound to suffer resource constraints. In addition, with many people, the quality of services delivered is difficult to ascertain. The findings show a quite high level of satisfaction with the manner in which patients' privacy was handled in the ED ($M = 7.27$, $SD = 2.41$).

4.1.2 Perceived quality dimensions

The respondents indicated that they were quite satisfied ($M = 7.22$, $SD = 2.22$) with the helpfulness and friendliness of the staff at the registration counter upon their admission to the ED. They were also quite satisfied with their professionalism and competence ($M = 7.40$, $SD = 2.15$) and with their overall performance ($M = 7.46$, $SD = 2.13$). Considering their personal assessment of their condition, most participants indicated that their waiting time for triage was quite fast ($M = 7.35$, $SD = 2.37$).

Table 4.4. Descriptive statistics related to the staff at the registration counter and waiting time for triage.

	n	Mean	Min	Max	SD
Friendliness and helpfulness of staff at the registration counter	371	7.22	1	10	2.22
Competence and professionalism of staff at the registration counter	368	7.40	1	10	2.15
Overall, the performance of the staff	372	7.46	1	10	2.13
Waiting time for triage in view of the severity of condition	362	7.35	1	10	2.37

The majority of the patients (79.9% of 378) had arrived at the emergency department without any clinical information (on paper) from past visits or from their doctor that described their health history. An arrival without any previous history means that their records had to be assessed, and this was done quickly, as 73.8% (of 366) indicated that they had waited up to 15 minutes for triage.

Table 4.5. Descriptive statistics related to the waiting time for triage, colour assigned in triage and agreement with the colour assigned.

	n	%
Waiting time for triage		
No waiting period	46	12.6
Up to 5 minutes	110	30.1
Over 5 and up to 15 minutes	114	31.1

Over 15 and up to 30 minutes	49	13.4
Over 30 minutes and up to 1 hour	25	6.8
Over 1 hour	22	6.0
Total	366	100.0
Colour assigned		
Red	4	1.4
Orange	55	19.0
Yellow	142	49.1
Green	85	29.4
Blue	2	.7
White	1	.3
Total	289	100.0
Agreement with colour assigned		
Yes, I agreed with the colour assigned	225	75.5
No, I should have been assigned a more urgent colour	73	24.5
Total	298	100.0

To further probe the participants' assessments of their condition, we asked the colour that they were assigned, as it pertains to the urgency of their cases. Most had received either yellow or green (49.1% or 29.4% of 289, respectively). Three quarters (75.5% of 298) of the participants agreed with the colour they were assigned.

Considered in detail, in terms of satisfaction and perceived quality of healthcare as regards *colour assigned*, the analysis was significant only in the case of satisfaction ($F(2,278)=2.95$, $p=0.05$) and was not significant in the case of perceived quality of healthcare ($F(2,275)=2.37$, $p=0.10$). Post hoc tests presented in Table 4.8 below reveal that participants who are assigned the colour orange ($M=7.58$, $SD=2.36$) tended to be more satisfied than those who were assigned yellow ($M=7.01$, $SD=2.29$) and green ($M=6.60$, $SD=2.41$). In the given context, we decided to eliminate some categories from the table (red, blue, and white) because the number of corresponding respondents was lower than 17.

Table 4.6. Differences related to colour assigned in terms of satisfaction and perceived quality of healthcare.

In terms of satisfaction and perceived quality of healthcare	n		Mean		Min		Max	SD	
Orange	55	55	7.58	8.05	1	1	10	2.36	1.95
Yellow	141	140	7.01	7.60	1	1	10	2.29	2.12
Green	85	83	6.60	7.28	1	2	10	2.41	2.01
Total	281	278	7.00	7.59	1	1	10	2.35	2.07

Note: The table represents the values for both satisfaction and perceived quality of healthcare in terms of: n, Mean, Min, and SD.

Next, the participants were asked to indicate their perceptions regarding nurses and doctors during and after triage. They were quite satisfied ($M = 7.73$, $SD = 1.99$) with the helpfulness and friendliness of the nurses during triage. These nurses were perceived to be professional and competent to a quite satisfactory level ($M = 7.82$, $SD = 1.94$). Based on their experience, their overall assessment of the nurses' performance was also quite satisfactory ($M = 7.84$, $SD = 1.92$). In their own assessment, and considering the severity of their condition, the waiting period post triage was neither long nor short ($M = 5.21$, $SD = 2.98$).

Table 4.7. Descriptive statistics related to personnel, conducting the triage and waiting time after triage.

	n	Mean	Min	Max	SD
Friendliness and helpfulness of the nurse conducting the triage	367	7.73	1	10	1.99
Competence and professionalism of the nurse conducting the triage	366	7.82	1	10	1.94
Overall, the performance of the nurse conducting the triage	366	7.84	1	10	1.92
Waiting time to be seen by a doctor after the triage in view of the severity of condition	372	5.21	1	10	2.98

Most participants waited for a fairly long time, up to two hours (75% of 359), before they were able to see a doctor. Almost two thirds (65.8% of 377) spent this time in a waiting room, with no information provided for the cause of the delay (83.4% of 356) and no explanation of why it took so long for them to see a doctor (65.8% of 357).

Table 4.8. Descriptive statistics related to waiting time after triage, waiting location after triage, information received on possible delays, and any explanation given for the delay.

	n	%
Waiting time to be seen by a doctor after the triage		
No waiting period	20	5.6
Up to 15 minutes	47	13.1
Over 15 and up to 30 minutes	57	15.9
Over 30 minutes and up to 1 hour	76	21.2
Over 1 and up to 2 hours	69	19.2
Over 2 and up to 4 hours	61	17.0
Over 4 and up to 6 hours	29	8.1
Total	359	100.0
Waiting location after triage		
I was treated immediately	20	5.3
In an observation room	32	8.5
On a stretcher, in the corridor	16	4.2
On a stretcher, in the observation room	31	8.2
In a waiting room	248	65.8
Another situation (which?)	30	8.0
Total	377	100.0
Information about possible delays in receiving treatment or waiting times		
Yes	59	16.6
No	297	83.4
Total	356	100.0
Explanations for the delay		
Yes	24	6.7
No	235	65.8
I did not wait for a long time	98	27.5
Total	357	100.0

Regarding their assessment of the doctors who saw them after triage, the participants found them to be helpful and friendly to a quite satisfactory level ($M = 7.74$, $SD = 2.17$). Their level of professionalism and competence was also quite satisfactory ($M = 7.90$, $SD = 2.15$). Furthermore, the participants were quite satisfied with the manner in which their problems were explained to them ($M = 7.78$, $SD = 2.30$), with the explanations provided on the examinations performed as well as the objectives of the treatments they had undergone ($M = 7.77$, $SD = 2.39$), and with the explanations on the medications and the precautions that they would need to take ($M = 7.95$, $SD = 2.23$). Based on these factors, the respondents were also quite satisfied with the overall performance of the doctors at the ED ($M = 7.89$, $SD = 2.26$).

Table 4.9. Descriptive statistics related to doctors.

	n	Mean	Min	Max	SD
Friendliness and helpfulness of the doctor(s)	379	7.74	1	10	2.17
Competence and professionalism of the doctor(s)	374	7.90	1	10	2.15
The way the doctor explained a health problem (diagnosis) during the examination	378	7.78	1	10	2.30
The explanations given by the doctor on the exams performed and the objectives of the treatment to be undertaken	366	7.77	1	10	2.39
The information provided on precautions to be taken, recommendations, and how to take or apply the medications prescribed after leaving hospital (in written or oral format)	370	7.95	1	10	2.23
Overall, the performance of the doctor(s)	378	7.89	1	10	2.26

While seeing the doctors, most participants (70.9% of 368) reported having contact with nurses. These nurses' helpfulness and friendliness were quite satisfactory ($M=8.05$, $SD = 1.93$), as were their professionalism and competence ($M=8.22$, $SD = 1.87$) and their overall performance ($M = 8.20$, $SD = 1.92$). Based on their rating on a satisfaction scale, the nurses performed much better than the ones patients encountered during triage.

Table 4.10. Descriptive statistics related to nurses and auxiliary staff.

	n	Mean	Min	Max	SD
Friendliness and helpfulness of the nurses	258	8.05	1	10	1.93
Competence and professionalism of the nurses	256	8.22	1	10	1.87
Overall, the performance of the nurses	260	8.20	1	10	1.92
Friendliness and helpfulness of the auxiliaries	123	8.17	1	10	1.89
Competence and professionalism of the auxiliaries	121	8.17	1	10	1.76
Overall, the performance of the auxiliary staff	122	8.26	1	10	1.78

We also sought to ascertain participants' perceptions regarding the auxiliary staff in the ED. The auxiliary staff were considered those who brought food, moved stretchers, and accompanied patients. Although few respondents (34.2% of 363) encountered them, they were quite satisfied with their helpfulness and friendliness ($M = 8.17$, $SD = 1.89$), their professionalism and competence ($M = 8.17$, $SD = 1.76$), and their overall performance ($M=8.26$, $SD = 1.78$).

Although a significant number of patients did not see the need for more staff (31.4%), a large number (38.7%) felt that there was a need for more doctors. This may be due to their experience of delay before being seen by the doctors.

Table 4.11. Descriptive statistics related to lack of any type of staff.

	n	%
Lack of any type of staff		
You did not feel the need for any type of staff	120	31.4
Doctors	148	38.7
Nurses	95	24.9
Auxiliaries (for example, those bringing food, moving stretchers, and accompanying patients, etc.)	81	21.2
Health technicians (conducting tests)	50	13.1
Administrative staff	12	3.1

In terms of the *lack of any type of staff*, specifically whether the patients felt that there should have been more of any type of staff, this question allowed multiple answers and included the possibility of marking more than one option. Here, we have to emphasise several categories: doctors, nurses, auxiliaries (for example, those bringing food, moving stretchers, and accompanying patients), health technicians (those conducting tests), and administrative staff. In terms of satisfaction, the analysis was significant regarding health technicians ($F(1,378)=29.63$, $p\leq 0.01$), doctors ($F(1,378)=65.79$, $p\leq 0.01$), nurses ($F(1,378)=14.00$, $p\leq 0.01$), and auxiliaries ($F(1,378)=6.87$, $p=0.01$), and it was not significant regarding administrative staff. We observe a similar level of significance in the case of perceived quality of healthcare regarding the same group of staff: health technicians ($F(1,371)=17.42$, $p\leq 0.01$), doctors ($F(1,371)=48.47$, $p\leq 0.01$), nurses ($F(1,371)=9.07$, $p\leq 0.01$), and auxiliaries ($F(1,371)=8.94$, $p\leq 0.01$). More specifically, patients who thought there was a lack of health technicians ($M=5.46$, $SD=2.71$) tended to be less satisfied than those who did not ($M=7.35$, $SD=2.22$); those who felt there was a lack of doctors ($M=5.96$, $SD=2.50$) tended to be less satisfied than those who did not ($M=7.83$, $SD=1.97$); those who felt there was a lack of nurses ($M=6.33$, $SD=2.38$) tended to be less satisfied than those who did not ($M=7.36$,

SD=2.32); and those who felt there was a lack of auxiliaries (M=6.49, SD=2.76) tended to be less satisfied than those who did not (M=7.27, SD=2.24). We observe the same tendency regarding the perceived quality of healthcare, namely, patients who thought there was a lack of health technicians (M=6.51, SD=2.43) tended to classify the perceived quality of healthcare as less appropriate than those who did not (M=7.83, SD=2.00); those who thought there was a lack of doctors (M=6.76, SD=2.27) tended to classify the perceived quality as less appropriate than those who did not (M=8.22, SD=1.77); those who felt there was a lack of auxiliaries (M=7.04, SD=2.46) tended to classify the perceived quality as less appropriate than those who did not (M=7.82, SD=1.97); and those who felt there was a lack of nurses (M=7.09, SD=2.07) tended to classify the perceived quality as less appropriate than those who did not (M=7.84, SD=2.09). Thus, we can conclude that patients who thought there was a lack of health technicians and doctors tended to be less satisfied and classified the perceived quality of healthcare as less appropriate than those who thought there was a lack of nurses and auxiliaries.

The majority of the respondents (88.5% of 374) received examinations and/or tests, most of which consisted of tests (blood, urine, etc) and X-rays (57.3% and 48.2%). As in the case of waiting to see a doctor, the waiting period for examinations and/or tests was neither long nor short, with most of the participants waiting up to two hours (84.2% of 305). Further, it took almost the same amount of time to see the doctor again after the examinations and/or tests, and the majority saw a doctor within up to four hours (89.8% of 297).

Table 4.12. Descriptive statistics related to the type of examinations and/or tests, waiting time for examinations and/or tests, and waiting time to be called back by the doctor.

	n	%
Type of examinations and/or tests done		
Tests (blood, urine, etc)	219	57.3
X-Ray	184	48.2
CT	57	14.9
Ultrasound	66	17.3
Endoscopy	5	1.3
Other (Which?)	35	9.2
Waiting time for examinations and/or tests		
No waiting period	19	6.2
Up to 15 minutes	57	18.7
Over 15 and up to 30 minutes	77	25.2
Over 30 minutes up to 1 hour	56	18.4
Over 1 and up to 2 hours	48	15.7
Over 2 and up to 4 hours	35	11.5
Over 4 and up to 6 hours	11	3.6
Over 6 and up to 9 hours	2	.7
Total	305	100.0
Waiting time to be called back by the doctor after the examinations and/or tests		
No waiting period	15	5.1
Up to 15 minutes	30	10.1
Over 15 and up to 30 minutes	39	13.1
Over 30 minutes up to 1 hour	61	20.5
Over 1 and up to 2 hours	69	23.2
Over 2 and up to 4 hours	53	17.8
Over 4 and up to 6 hours	22	7.4
Over 6 and up to 9 hours	8	2.7
Total	297	100.0

The waiting time for examinations and/or tests was considered to be neither long nor short (M =5.98, SD = 2.66). The participants' perceptions of the time for them to be called back by the doctor after examinations and/or tests was also considered to be neither long nor short (M = 5.58, SD = 2.71). The

majority thought that health technicians were helpful and friendly ($M=7.52$, $SD = 2.04$), as well as competent and professional ($M=7.77$, $SD = 1.99$). Further, they were satisfied with the quality of services they received during examinations and/or tests ($M=7.72$, $SD = 1.94$).

Table 4.13. Descriptive statistics related to health technicians, waiting time for examinations and/or tests, and waiting time to be called back by the doctor.

	n	Mean	Min	Max	SD
Waiting time for examinations and/or tests in view of the severity of condition	311	5.98	1	10	2.66
Waiting time to be called back by the doctor after the examinations and/or tests in view of the severity of condition	314	5.58	1	10	2.71
Friendliness and helpfulness of the health technicians in question	322	7.52	1	10	2.04
Competence and professionalism of the health technicians in question	312	7.77	1	10	1.99
Overall, the quality of the services provided with examinations or tests	319	7.72	1	10	1.94

Regarding hospitalisation, the majority of the patients in our sample were not admitted following treatment (76.3% of 371). Among those who were admitted, their stay was short, with almost a quarter taking up to four days (23.3% of 86), although some stayed longer.

Table 4.14. Descriptive statistics related to hospitalisation.

	n	%
Admitted to HSFx or (referred for hospitalisation) to another hospital		
Yes, at HSFx	49	13.2
Yes, at another hospital	39	10.5
No	283	76.3
Total	371	100.0
Length of hospitalisation		
Up to 2 days	17	19.8
Over 2 and up to 4 days	20	23.3
Over 4 and up to 8 days	14	16.3
Over 8 and up to 16 days	17	19.8
Over 16 and up to 30 days	12	14.0
Over 30 days	6	7.0
Total	86	100.0

Considered in detail, in terms of satisfaction and perceived quality of healthcare as regards *hospitalisation*, the analysis was significant in the case of satisfaction ($F(2,367)=3.25$, $p=0.04$) and not significant in the case of perceived quality of healthcare ($F(2,361)=2.03$, $p=0.13$). More specifically, according to the post hoc tests, the results represented in Table 4.18 below demonstrate that, after the participants were seen at the HSFx ED, those who were referred for hospitalisation to HSFx ($M=7.88$, $SD=2.29$) tended to be more satisfied than those who were referred for hospitalisation to another hospital ($M=7.18$, $SD=2.48$) and those who were not referred for hospitalisation ($M=6.95$, $SD=2.37$).

Table 4.15. Differences related to hospitalisation in terms of satisfaction and perceived quality of healthcare.

In terms of satisfaction and perceived quality of healthcare	n		Mean		Min	Max	SD	
Yes, at HSFx	49	49	7.88	8.20	1	10	2.29	2.16
Yes, at another hospital	39	39	7.18	7.79	1	10	2.48	2.09
No	282	276	6.95	7.56	1	10	2.37	2.08
Total	370	364	7.09	7.67	1	10	2.38	2.10

Note: The table represents the values for both satisfaction and perceived quality of healthcare in terms of: n, Mean, and SD.

Almost two thirds of the respondents (63.9% of 352) received treatment at the ED and were quite satisfied with it ($M=8.24$, $SD = 1.90$). Most of the patients were accompanied to the emergency department (76.3% of 376) and were allowed to be accompanied during the processes (82.7% of 277).

The medical staff communicated with most (61.9% of 270) of the people who accompanied them. Participants were quite satisfied with this communication ($M=8.30$, $SD = 1.79$).

Table 4.16. Descriptive statistics related to evaluation of the treatment received and communication with relatives.

	n	Mean	Min	Max	SD
Evaluation of the treatment received	224	8.24	1	10	1.90
The way the HSFJX emergency department doctor or nurse communicated with relatives or with the people accompanying the patient about the health situation	164	8.30	1	10	1.79

During the discharge process, most of the patients (75.7% of 350) received a discharge note, and of those who did not, most (86.1% of 79) did not receive any explanation for the omission. The process was very fast, with almost one third being discharged without any waiting period (30.9% of 317), and most of those who were delayed (21.5% of 317) took between five and 15 minutes to be discharged.

Table 4.17. Descriptive statistics related to the discharge waiting time.

	n	%
Waiting time from when the patient was informed about discharge until the patient left the hospital		
No waiting period	98	30.9
Up to 5 minutes	42	13.2
Over 5 and up to 15 minutes	68	21.5
Over 15 and up to 30 minutes	38	12.0
Over 30 minutes and up to 1 hour	34	10.7
Over 1 hour	37	11.7
Total	317	100.0

The overall perception of the discharge waiting period was quite fast ($M = 7.67$, $SD = 2.60$).

Table 4.17.1. Descriptive statistics related to the discharge waiting time.

	n	Mean	Min	Max	SD
Waiting time from when the patient was informed about discharge until the patient left the hospital	317	7.67	1	10	2.60

Most of the participants (64% of 358) spent up to six hours in the ED from when they arrived until they left. More than half (55.1% of 356) paid a fixed user charge, with a significant number of them being exempt (39% of 356).

Table 4.18. Descriptive statistics related to the total time spent in the ED and payment of a fixed user charge.

	n	%
Total time spent in ED		
Up to 1 hour	14	3.9
Over 1 and up to 3 hours	87	24.3
Over 3 and up to 6 hours	128	35.8
Over 6 and up to 12 hours	79	22.1
Over 12 and up to 24 hours	30	8.4
Over 24 and up to 48 hours	13	3.6
Over 48 hours	7	2.0
Total	358	100.0
Payment of a fixed user charge		
Paid	196	55.1
Exempt	139	39.0
Did not pay because they did not know if they were exempt	1	.3
Did not pay, because they were not asked	17	4.8
Did not pay, because they did not have any money	3	.8
Total	356	100.0

4.1.3 Expectations

We also sought to understand whether patients' expectations were being met. The results show that their expectations were met fairly satisfactorily ($M = 6.65$, $SD = 2.39$).

Table 4.19. Descriptive statistics related to patients' expectations.

	n	Mean	Min	Max	SD
Meeting expectations	375	6.65	1	10	2.39

4.2 Patient satisfaction

Following the determination of the patients' perceptions, we sought to establish their level of satisfaction and the perceived quality of healthcare evaluation.

4.2.1 Patients' level of satisfaction and evaluation of the perceived quality of healthcare

Considering their entire experience at the ED, the patients indicated that they were quite satisfied ($M=7.10$, $SD = 2.38$) and evaluated the quality of the healthcare as quite appropriate ($M = 7.65$, $SD = 2.10$).

Table 4.20. Descriptive statistics related to patient satisfaction and perceived quality of the healthcare.

	n	Mean	Min	Max	SD
Level of satisfaction	380	7.10	1	10	2.38
Overall, the quality of the healthcare	373	7.65	1	10	2.10

4.3 Consequences (outcomes of satisfaction)

We sought to ascertain the respondents' opinions regarding the outcomes of satisfaction. This was divided into various stages: payment perception, confidence/trust, and complaints.

4.3.1 Payment perception, confidence/trust, and complaints

The participants had diverse opinions with regard to whether the current fixed user charge payment impacted the quality of emergency service and treatment ($M=4.34$, $SD = 3.33$). They also had varying opinions on whether the payment of the fixed user charge should be sustained to improve the service and treatments in the ED, regardless of the current charges and exemptions ($M = 5.88$, $SD=3.60$).

Table 4.21. Descriptive statistics related to payment perception and confidence/trust.

	n	Mean	Min	Max	SD
The current payment of the fixed user charge may influence the quality of the service and treatment	328	4.34	1	10	3.33
Regardless of the current charges and exemptions, a fixed user charge should be paid to access the emergency department in order to help improve the service and treatments received	363	5.88	1	10	3.60
Confidence/trust in the HSFx emergency department the next time it is necessary	374	8.11	1	10	2.42

In total, 88.4% (of 379) of the participants did not present any complaints to the ED. In addition, they very likely ($M = 8.11$, $SD = 2.42$) would have had confidence/trust in the HSFx ED.

4.4 Controlling factors

Controlling factors may decisively affect the nature of patient satisfaction and determine the level of satisfaction. Here, we considered specific patients' characteristics, state of health/health status, psychological state, and social and demographic attributes.

4.4.1 Specific patients' characteristics

Although the patients provided a short overview of the processes they underwent in the ED, greater detail is provided below. At the time of data collection, more than three quarters had visited the ED before (84% of 375); thus, they were already familiar with the processes and procedures and had formed expectations. Familiarity can either decrease the expected minimum or raise the threshold that has to be met before the patient experiences satisfaction (Griffin & McDevitt, 2016). In the year 2016 alone,

most of the participants who had previously visited the ED had done so either once or twice (47.1% or 29.2% of 257, respectively). The participants' last visit to the ED was spread throughout the year.

Table 4.22. Descriptive statistics related to the number of times and last time (month) in the emergency department.

	n	%	Mean 2.21	Min 1	Max 20	SD 2.220
Number of times in the emergency department in 2016						
1	121	47.1				
2	75	29.2				
3	24	9.3				
4	16	6.2				
5 or more	21	8.3				
Total	257	100				
Last time in the ED						
Admission date - month			-	-	-	-
December - February	47	25.7				
March - May	39	21.3				
June - August	45	24.6				
September - November	52	28.4				
Total	183	100.0				

It was established that slightly more than half (50.7% of 375) of the participants had visited the ED due to illness, with slightly below a quarter (21.6% of 375) visiting for other reasons. Prior to their visit, the majority had endured the symptoms for varied time periods, ranging from up to 24 hours or for about seven days (66.3% or 26.2% of 366, respectively).

Table 4.23. Descriptive statistics related to the last reason for coming to the emergency department and duration of symptoms or complaints before coming to the emergency department.

	n	%
Last reason for coming to the emergency department		
Accident	54	14.4
Illness	190	50.7
Feeling unwell	50	13.3
Other (Please specify)	81	21.6
Total	375	100.0
Duration of symptoms or complaints before coming to the emergency department		
Up to 1 hour	61	16.7
Over 1 and up to 2 hours	39	10.7
Over 2 and up to 4 hours	49	13.4
Over 4 and up to 6 hours	39	10.7
Over 6 and up to 24 hours	54	14.8
Over 1 and up to 7 days	96	26.2
Over 7 days	28	7.7
Total	366	100.0

In our study, the participants tended to use private transport (64.3% of 378) as opposed to public means or an INEM ambulance. The main reason for using the ED was found to be the presence of better conditions of treatment, such as the immediate availability of tests and the presence of specialists (23% of 369). This further confirms that a significant number of the participants are either middle or upper class, given that their immediate need is not the treatment itself, but better conditions of treatment. This implies that in a situation where they fail to find this even in the ED, they are more likely to seek treatment elsewhere.

Table 4.24. Descriptive statistics related to means of transport used to reach the emergency department and the main reason for using the HSFH hospital emergency department.

	n	%
Means of transport used to reach the emergency department		
INEM ambulance	66	17.5
Other ambulance	25	6.6
Private transport (own vehicle, vehicle belonging to relative, friend or	243	64.3

neighbour)		
Public transport (bus, train, taxi or other hired services)	36	9.5
Other	8	2.1
Total	378	100.0
The main reason for using the HSFH hospital emergency department		
Advised by the Linha Saúde 24 health line (contacted Linha Saúde 24)	42	11.4
Referred by 112	56	15.2
You did not want to wait for an appointment (at health centre or with specialist)	17	4.6
You do not have a family doctor	5	1.4
The health centre does not have unscheduled appointments ("emergency department")	29	7.9
The health centre opening hours are restricted/inconvenient for you	10	2.7
Much closer to the emergency department	41	11.1
Better treatment conditions (at the emergency department there are specialists, tests are immediately available, etc.)	85	23.0
At the emergency department, treatment is faster	15	4.1
Other (please specify)	69	18.7
Total	369	100

More than half of the participants answered in the affirmative (57.2% of 362) concerning chronic illnesses; this is another explanation of why they sought better treatment. Among those who had chronic illnesses, most had only one (35.6% of 362). The type of chronic illness was classified according to the International Classification of Diseases (WHO, 2007) and later, during the analysis, up to six diseases patients declared were classified. Multiple-choice classification was supported by the argument that a person could have more than one disease thus classified into the same group or into different groups, where the most common type of illnesses was 'diseases of the circulatory system' (33.8%), 'diseases of the musculoskeletal system and connective tissue' (22.2%); 'endocrine, nutritional, metabolic, and immune diseases' (19.3%); and 'diseases of the respiratory system' (19.3%).

Table 4.25. Descriptive statistics related to the number and type of chronic illnesses.

	n	%	Mean	Min	Max	SD
Number of chronic illnesses			.90	0	6	1.043
0	155	42.8				
1	129	35.6				
2	51	14.1				
3 or more	27	7.5				
Total	362	100				
Type of chronic illness			-	-	-	-
Diseases of the circulatory system	70	33.8				
Diseases of the musculoskeletal system and connective tissue	46	22.2				
Endocrine, nutritional, metabolic and immune diseases	40	19.3				
Diseases of the respiratory system	40	19.3				
Diseases of the nervous system	29	14.0				
Neoplasms (tumours)	21	10.1				
Diseases of the digestive system	18	8.7				
Diseases of the genitourinary system	13	6.3				
Mental and behavioural disorders	13	6.3				
Diseases of the eye and adnexa	8	3.9				
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	5	2.4				
Diseases of the skin and subcutaneous tissue	3	1.4				
Diseases of the ear and mastoid process	2	1.0				
Infectious and parasitic diseases	1	0.5				

Furthermore, our consideration here was to verify whether the analysis was significant regarding participants who have *any illness or chronic health condition* and those who do not. The test reveals that there are statistically significant differences between the categories in terms of satisfaction ($t(327) = -2.12$, $p=0.04$) and perceived quality of healthcare ($t(320) = -2.03$, $p=0.04$). More specifically, those who had an illness or chronic health condition tended to be more satisfied ($M=7.44$, $SD=2.22$) than those who did not

(M=6.84, SD=2.45). We observed the same trend regarding the perceived quality of healthcare among those who had it (M=7.95, SD=2.02) and those who did not have it (M=7.44, SD=2.16).

Taking into account the *type of chronic illness* that was classified according to the International Classification of Diseases (WHO, 2007), in this analysis, we considered only those types with more than 15 respondents: neoplasms (tumours); endocrine, nutritional, metabolic, and immune diseases; diseases of the nervous system; diseases of the circulatory system; and diseases of the respiratory system. We should emphasise here that diseases of the musculoskeletal system and connective tissue showed statistically significant differences between the categories both in terms of satisfaction ($t(372) = -2.13, p=0.03$) and perceived quality of healthcare ($t(365) = -2.13, p=0.03$). More specifically, those who had this type of illness tended to be more satisfied (M=7.94, SD=1.97) than those who did not have such an illness (M=7.02, SD=2.40). We observe the same trend regarding the perceived quality of healthcare among those who had it (M=8.39, SD=1.94) and those who did not have it (M=7.58, SD=2.10).

Few of the participants' health issues were followed up at private appointments (26.4%) in comparison with hospital appointments or health centre appointments (41.6% or 53.9%). The implication is that private institutions are too expensive and few can afford them, and those who can are most likely upper-class patients.

Table 4.26. Descriptive statistics related to health issues that require follow-up.

	n	%
Health issues that require follow-up		
Hospital appointments	159	41.6
Health centre appointments	206	53.9
Private appointments	101	26.4
Other	11	2.9
You do not have health issues that require follow-up	40	10.5

The variable that refers to *health issues that require follow-up* presented multiple answers with the possibility of marking more than one option. Here, we must emphasise three important categories: hospital appointments, health centre appointments, and private appointments. For the first, the analysis was significant only in the case of perceived quality of healthcare ($t(371) = -2.13, p=0.03$), and it was not significant in the case of satisfaction ($t(378) = -1.88, p=0.06$). Regarding health centre appointments, the analysis was also significant only in the case of perceived quality of healthcare ($t(371) = -2.34, p=0.02$), and it was not significant in the case of satisfaction ($t(378) = -1.61, p=0.11$). For private appointments, the test reveals that there are statistically significant differences between the categories, both in terms of satisfaction ($t(378) = 2.79, p=0.01$) and perceived quality of healthcare ($t(371) = 2.34, p=0.02$). Analysis of the results shows that participants whose health issues are normally followed up at hospital appointments tended to classify the perceived quality of healthcare as more appropriate (M=7.92, SD=2.09) than those whose health issues are not followed up there (M=7.46, SD=2.10). For health centre appointments, we can see a similar situation for participants whose health issues are normally followed up in that setting; they tended to classify the perceived quality of healthcare as more appropriate (M=7.89, SD=1.93) than those whose health issues are not followed up there (M=7.38, SD=2.26). Participants whose health issues are normally followed up at private appointments tended to be less satisfied (M=6.54, SD=2.63) when considering their experience with the HSFY ED, which is considered a public hospital, than those whose

health issues are not followed up there ($M=7.30$, $SD=2.25$). We can observe the same trend in the case of perceived quality of healthcare among those whose health issues are normally followed up at private appointments ($M=7.23$, $SD=2.34$) and those whose health issues are not followed up there ($M=7.80$, $SD=2.00$). In this context, we decided not to consider two categories ('do not have health issues that require follow-up' and 'other') because their number of respondents was lower than 17.

To further clarify the situation, we asked respondents whether they had health insurance. Almost two thirds of the respondents lacked insurance (65.9% of 367). This, coupled with a preference for public hospitals, could mean that the private hospitals are too expensive, such that only those with health insurance can afford them. Furthermore, more than two thirds (70.8% of 366) lacked another health system (sub-system). The public health system was therefore the only option for the majority, and the ED was preferred for a significant portion of this majority.

4.4.2 Psychological state and state of health/health status

Since behaviour and satisfaction are psychological, we thought it important to examine the patients' psychological states (Buchanan, Dawkins & Lindo, 2015). This in turn enabled the determination of potential bias from participants in their responses to questions concerning their experiences (Abtahi, Brodke, Lawrence, Zhang, & Spiker, 2015). We first established their satisfaction with life. Most of the participants tended to be quite satisfied with life ($M = 7.58$, $SD = 1.97$) and happy, considering all aspects of their lives ($M = 7.58$, $SD = 1.96$).

Table 4.27. Descriptive statistics related to psychological state.

	n	Mean	Min	Max	SD
Level of satisfaction with life in general	375	7.58	1	10	1.97
Level of happiness	369	7.58	1	10	1.96

At a personal level, the majority considered their health status to be good or reasonable (38.5% or 36.9% of 374, respectively) in comparison with others their age.

Table 4.28. Descriptive statistics related to the state of health.

	n	%	Mean	Min	Max	SD
State of health compared to other people of the same age			2.58	1	5	.942
Very good	40	10.7				
Good	144	38.5				
Reasonable	138	36.9				
Bad	38	10.2				
Very bad	14	3.7				
Total	374	100				

4.4.3 Social and demographic attributes

Social and demographic attributes are often included in instruments that measure satisfaction, as they act as moderators for behaviour (Al-Abri & Al-Balushi, 2014; Handel, French, Nichol, Momberger & Fu, 2014). In our case, we included the district, nationality, age, gender, family status (marital status), level of education, employment situation, number of people in the household, and monthly household income. The participants were mostly from Lisbon (96% of 379) and were grouped into persons with dual nationality, other nationality, and Portuguese (2.1%, 2.6%, and 95.3% of 381, respectively). There were

more females among the respondents (61.3% of 382). There seemed to be a uniform distribution of participants across age groups, with the major part up to 60 years (66% of 382).

Table 4.29. Descriptive statistics related to age groups.

	n	%	Mean	Min	Max	SD
Age (years)			53.19	20	92	20.235
18 - 30	57	14.9				
31 - 40	73	19.1				
41 - 50	55	14.4				
51 - 60	67	17.6				
61 - 70	36	9.2				
71 - 80	38	9.8				
80+	56	14.7				
Total	382	100				

The family situation (marital status) was also examined, as it could explain behaviour that resulted from a dysfunctional background which, in turn, could impact patients' perceptions of their individual situation and their surroundings (Abtahi, Brodke, Lawrence, Zhang & Spiker, 2015). In our case, the married and single people were the majority (42.9% and 22.1% of 380).

Table 4.30. Descriptive statistics related to family situation (marital status).

	n	%
Family situation		
Single	84	22.1
Married	163	42.9
Unmarried partner	50	13.2
Separated	6	1.6
Divorced	28	7.4
Widow/er	49	12.9
Total	380	100.0

Participants were also asked to state the size of their households. Most families were small, with up to two people in the household (64.3% of 369).

Table 4.31. Descriptive statistics related to the number of people in the household.

	n	%	Mean	Min	Max	SD
Number of people in the household			2.04	0	7	1.400
0	49	12.8				
1	91	23.8				
2	106	27.7				
3	69	18.1				
4 or more	54	14.2				
Total	369	100				

The employment situation helped predict the income situation. Moreover, it may have helped in shaping individual attitudes towards services. The majority in our study was employed and retired (49.7% and 32.4% of 376, respectively). Education is another factor often used to predict behaviour, as it helps shape an individual's level of exposure and reasoning. Most of the patients were graduates, with higher and secondary education (29.2% and 24.1% of 377).

Table 4.32. Descriptive statistics related to employment situation, level of education and monthly household income.

	n	%
Employment situation		
Employed	187	49.7
Independent	4	1.1
Unemployed	27	7.2
Student	13	3.5
Domestic employee	7	1.9
Retired	122	32.4
Other	16	4.3
Total	376	100.0
Level of education		
Unable to read or write	5	1.3
Able to read and write without any formal education	7	1.9
Basic education first cycle (up to year 4)	52	13.8

Basic education second cycle (years 5 and 6/preparatory cycle)	27	7.2
Basic education third cycle (year 9/year 5 of <i>liceu</i> , general <i>liceu</i> course/former technical schools)	50	13.3
Secondary education (year 12/year 7 of <i>liceu</i> /technical schools)	91	24.1
Higher education (undergraduate or lower degree - <i>bacharelato</i>)	110	29.2
Postgraduate studies (MA or doctorate)	35	9.3
Total	377	100.0
Monthly household income after taxes and social security contributions		
Less than 400 euros	38	11.4
400 – 699 euros	90	27.0
700 – 999 euros	64	19.2
1000 – 1,499 euros	62	18.6
1500 – 1,999 euros	41	12.3
2000 – 2,499 euros	20	6.0
2500 – 2,999 euros	7	2.1
Over 3,000 euros	11	3.3
Total	333	100

We also sought to understand participants' income level, which in a way predicted their social class. Those who earned €400–€1,999 euros were the majority (77.1% of 333).

4.5 Exploratory factor analysis

Given that our questionnaire contained 75 questions, we found it reasonable to select variables with a composite scale to reduce the complexity of the data and simplify it by leading a set of eight measures, composite scales to one single scale, namely: 1) accessibility and availability, 2) facilities and physical conditions, 3) satisfaction with staff at the registration counter, 4) satisfaction with personnel conducting the triage, 5) satisfaction with doctors, 6) satisfaction with nurses, 7) satisfaction with auxiliary staff, and 8) satisfaction with the health technicians responsible for examinations and/or tests. The descriptive statistics of the given variables are discussed above.

Accessibility and availability consisted of five items: location, orientation, distance between the different areas, availability of equipment and of specialist staff, and overall satisfaction with accessibility and availability.

Facilities and physical conditions consisted of six items: conditions, comfort, and convenience of the waiting-room; the same aspects of the observation room; the same aspects of the facilities where tests were performed; age and operation of equipment; cleanliness and hygiene of the facilities; and the overall satisfaction with facilities and physical conditions.

Satisfaction with staff at the registration counter, with personnel conducting the triage, with nurses, with auxiliary staff, and with health technicians responsible for examinations and/or tests consisted of three items: friendliness and helpfulness, competence and professionalism, and overall performance.

Satisfaction with doctors consisted of six items: friendliness and helpfulness; competence and professionalism; the way the doctor explained a health problem (diagnosis); explanations given by the doctor on the exams performed and the objectives of the treatment to be undergone; information provided on precautions to be taken, recommendations for taking or applying the medications prescribed; and overall performance.

We used exploratory factor analysis (EFA) to test the factorial structure of the items for satisfaction with the measures mentioned above. The EFA was conducted using the principal axis

factoring (PAF) method for extraction, the scree plot for selecting the number of factors, and the oblimin rotation to interpret the factor loadings. Factor analysis is a statistical technique used to model the inter-relationships between multiple items but with fewer variables. It reduces composite scale variables with several measures into one single scale to save time and facilitate interpretation (Yong & Pearce, 2013). Factor loading expresses the association of variables to their underlying factors. The statistical significance of factor loadings is based on their magnitude (Yong & Pearce, 2013). We considered factor loadings above 0.30 to be statistically significant and excluded any item with multiple loadings above that value. For the rotated factor loading of a sample of at least 300 participants to be statistically significant at an alpha level of 0.01 (two-tailed), it would need to be greater than or equal to 0.32 (Kline, 2014). We can thus say that 0.30 in our case is acceptable, as we have 382 participants. For factorial analysis, Cronbach's alpha was used to measure the internal consistency of the questionnaire items (Kline, 2014). High alpha coefficients of more than 0.90 indicate excellent internal consistency, those between 0.80 and 0.90 are good, those between 0.70 and 0.80 indicate that the internal consistency is acceptable, and low alpha coefficients show questionable, poor, or unacceptable internal consistency (Yong & Pearce, 2013).

4.5.1 Accessibility and availability/facilities and physical conditions

Two sets of items were used to measure satisfaction with a rating scale from 1 (far from satisfied) to 10 (totally satisfied). The first set of five items measured *satisfaction with accessibility and availability* and addressed the dimensions mentioned above: location, orientation, distance between the different areas, availability of equipment and of specialist staff, and overall satisfaction with accessibility and availability.

The second set of six items measured *satisfaction with the facilities and physical conditions* and addressed the dimensions mentioned above: conditions, comfort, and convenience of the waiting-room; the same three aspects of the observation room; the same aspects of the facilities where tests were performed; age and operation of equipment; cleanliness and hygiene of the facilities; and overall satisfaction with facilities and physical conditions.

An EFA with 11 items was computed using an oblimin rotation, and the results show that the best solution according to the scree plot has, as expected, two factors, one for accessibility and availability, with 54.50% of explained variance, and one for facilities and physical conditions, with 8.84% of explained variance. The internal consistency analysis showed a Cronbach's alpha of, respectively, 0.87 and 0.92.

Table 4.33. EFA results for accessibility and availability/facilities and physical conditions.

	Accessibility and availability	Facilities and physical conditions
Overall satisfaction with facilities and physical conditions	0.92	-0.03
Conditions, comfort, and convenience of the observation room	0.86	-0.02
Conditions, comfort, and convenience of the facilities where tests were performed	0.82	0.06
Cleanliness and hygiene of the facilities	0.77	-0.03
Age and operation of equipment	0.74	0.12
Conditions, comfort, and convenience of the waiting room	0.72	0.01

Distance between the different areas	0.04	0.76
Overall satisfaction with accessibility and availability	0.15	0.76
Orientation	0.09	0.72
Location	-0.13	0.71
Availability of equipment and of specialist staff	0.26	0.55
Variance	54.50%	8.84%
Alpha	0.87	0.92
Mean	7.60	6.33
SD	1.66	1.95
n	382	382

4.5.2 Emergency department personnel

To evaluate satisfaction with the personnel in the ED, we considered six sets of items with a rating scale from 1 (far from satisfied) to 10 (totally satisfied). These sets measured the following: 1) satisfaction with staff at the registration counter, 2) with personnel conducting the triage, 3) with doctors, 4) with nurses, 5) with auxiliary staff, 6) and with health technicians responsible for examinations and/or tests.

Satisfaction with staff at the registration counter, with personnel conducting the triage, with nurses, with auxiliary staff, and with health technicians responsible for examinations and/or tests addressed three dimensions mentioned above: friendliness and helpfulness, competence and professionalism, and overall performance.

An additional set of items measured satisfaction with doctors on the following dimensions mentioned above: friendliness and helpfulness; competence and professionalism; the way the doctor explained a health problem (diagnosis); explanations given by the doctor on the exams performed and the objectives of the treatment to be undertaken; information provided on precautions to be taken, recommendations, and how to take or apply the medications prescribed; and overall performance.

Taking into account that participants did not have contact with all personnel, an EFA with all 21 items does not load properly. We thus ran an EFA for each set of items.

The results of the EFA for *satisfaction with staff at the registration counter* showed good support for the single factor solution, with 92.03% of explained variance and all the factor loadings above 0.94. Internal consistency analysis showed a Cronbach's alpha of 0.97.

Table 4.34. EFA results for staff at the registration counter - satisfaction scale.

Staff at the registration counter	
Overall performance	0.98
Competence and professionalism	0.94
Friendliness and helpfulness	0.95
Variance	92.03%
Alpha	0.97
Mean	7.37
SD	2.10
n	374

The results of the EFA for *satisfaction with personnel conducting the triage* showed good support for the single factor solution, with 92.03% of explained variance and all factor loadings above 0.94. Internal consistency analysis showed a Cronbach's alpha of 0.97.

Table 4.35. EFA results for the personnel, conducting the triage - satisfaction scale.

Personnel conducting the triage	
Overall performance	0.99
Competence and professionalism	0.98
Friendliness and helpfulness	0.91
Variance	92.03%
Alpha	0.97
Mean	7.80
SD	1.89
n	368

The results of the EFA for *satisfaction with nurses* showed good support for the single factor solution, with 89.99% of explained variance and all factor loadings above 0.89. Internal consistency analysis showed a Cronbach's alpha of 0.96.

Table 4.36. EFA results for nurses - satisfaction scale.

Nurses	
Overall performance	0.99
Competence and professionalism	0.97
Friendliness and helpfulness	0.89
Variance	89.99%
Alpha	0.96
Mean	8.15
SD	1.84
n	260

The results of the EFA for *satisfaction with auxiliary staff* showed good support for the single factor solution, with 92.48% of explained variance and all factor loadings above 0.94. Internal consistency analysis showed a Cronbach's alpha of 0.97.

Table 4.37. EFA results for auxiliary staff - satisfaction scale.

Auxiliary staff	
Overall performance	0.94
Competence and professionalism	0.99
Friendliness and helpfulness	0.95
Variance	92.48%
Alpha	0.97
Mean	8.21
SD	1.77
n	123

The results of the EFA for *satisfaction with health technicians responsible for examinations and/or tests* showed good support for the single factor solution, with 90.59% of explained variance and all factor loadings above 0.93. Internal consistency analysis showed a Cronbach's alpha of 0.97.

Table 4.38. EFA results for health technicians - satisfaction scale.

Health technicians responsible for examinations and/or tests	
Overall performance	0.93
Competence and professionalism	0.98
Friendliness and helpfulness	0.95
Variance	90.59%
Alpha	0.97
Mean	7.64
SD	1.94
n	323

The results of the EFA for *satisfaction with doctors* showed good support for the single factor solution, with 88.79% of explained variance and all the factor loadings above 0.88. Internal consistency analysis showed a Cronbach's alpha of 0.98.

Table 4.39. EFA results for doctors - satisfaction scale.

Doctors	
Overall performance	0.98
The way the doctor explained a health problem (diagnosis)	0.96
Competence and professionalism	0.95
Explanations given by the doctor on the exams performed and the objectives of the treatment to be undertaken	0.95
Information provided on precautions to be taken, recommendations, and how to take or apply the medications prescribed	0.94
Friendliness and helpfulness	0.88
Variance	88.79%
Alpha	0.98
Mean	7.84
SD	2.13
n	380

In all the cases analysed above, we can conclude that the items used can be aggregated into single factors due to the strong correlations observed. More specifically, the alpha coefficients are high (0.87 to 0.99), reinforcing the conclusion that the items have relatively good internal consistency, which gives us confidence that our measure is reliable and correct.

4.6 Conclusion

In this conclusion, we emphasise the most important issues in this section. Given a sample that is quite heterogeneous (e.g., with respect to age and income), most of the participants tended to be quite satisfied and happy with life. At the time of data collection, more than three quarters had visited the ED before. The results showed that their expectations were met fairly satisfactorily. At a personal level, the majority considered their health status to be good or reasonable in comparison with people their age.

In terms of ED staff, the respondents indicated that they were satisfied with all ED staff that we mentioned and discussed, as well as with accessibility and availability. With regard to facilities and physical conditions, participants were less satisfied, while, at the same time, they were quite satisfied with

the way privacy was safeguarded. The waiting time results showed different ratings depending on the evaluation interval; regarding payment perception, too, the respondents had diverse opinions. Communication with relatives, and evaluation of the treatment received showed quite high levels of satisfaction. Respondents considered their entire experience at the ED quite satisfactory, and very likely they would have confidence/trust in the ED.

Some results described above also help us understand the relation between some categorical variables and both satisfaction and perceived quality of healthcare, as well as the differences between these categories through applied ANOVA tests and T-tests. Namely, our analysis showed that patients assigned an orange colour tended to be more satisfied than those who were assigned yellow and green; in addition, patients who were referred for hospitalisation to HSFX tended to be more satisfied than those who were referred for hospitalisation to another hospital and those who were not referred for hospitalisation. Patients whose health issues are normally followed up at hospital appointments tended to classify the perceived quality of healthcare as more appropriate than those whose health issues are not followed up there, and patients whose health issues are normally followed up at health centre appointments tended to classify the perceived quality of healthcare as more appropriate than those whose health issues are not followed up there. However, patients whose health issues are normally followed up at private appointments tended to be less satisfied and classified the perceived quality of healthcare as less appropriate when considering their experience with the HSFX ED, which is considered a public hospital, than those whose health issues are not followed up there. Patients who thought there was a lack of health technicians and doctors tended to be less satisfied and classified the perceived quality of healthcare as less appropriate than those who thought there was a lack of nurses and auxiliaries. Patients who had illnesses or chronic health conditions tended to be more satisfied and classified the perceived quality of healthcare as more appropriate than those without illnesses or chronic health conditions. Finally, patients with illnesses/diseases of the musculoskeletal system and connective tissue tended to be more satisfied and classified the perceived quality of healthcare as more appropriate than those without this type of illness. As we observed above, some categories may be susceptible to satisfaction while not being susceptible to perceived quality of healthcare and vice versa, or they may be susceptible to both, proving the complexity and inconsistency of these two concepts.

A set of variables for which the analysis was significant showed a different relation to satisfaction and perceived quality of healthcare. In particular, for *colour assigned and hospitalisation*, the analysis was significant only in the case of satisfaction and not significant in the case of perceived quality of healthcare. For *health issues that require follow-up*, in terms of hospital appointments and health centre appointments, the analysis was significant only in the case of perceived quality of healthcare and not significant in the case of satisfaction. In terms of private appointments, the analysis was significant both for satisfaction and perceived quality of healthcare, which allowed us to assume that patients whose health issues are normally followed up at private appointments are more demanding in terms of satisfaction and perceived quality of healthcare. Regarding the *lack of any type of staff*, the analysis was significant for both satisfaction and perceived quality of healthcare. For the last issue concerning the

presence of *any illness or chronic health condition* and its *type*, the analysis was also significant in terms of satisfaction and perceived quality of healthcare. Consequently, we can conclude that the results showed that satisfaction and perceived quality of healthcare are not the same; these two concepts may be perceived in a different way and show similar or different levels of significance regarding the issues under investigation.

5. Intersection of survey results with clinical data

5.1 Perceptions and clinical attributes

Long waiting times in EDs may cause various problems, such as overcrowding and complaints, which contribute to patient dissatisfaction and lack of trust in the ED. In turn, the triage category or colour assigned in triage may determine a specific waiting time in view of the severity of the health condition. Together, these aspects may influence patients' perceptions. In turn, those perceptions may differ and create a problem due to disagreement with the colour assigned or an overestimation of the waiting time. In this context, patients' perceptions need to be clarified and distinguished using objective, clinical data. Hence, the objective of this part of the study involved observing correlations between waiting time perceptions and objective, clinical data subject to the colour assigned in triage, agreement with the colour assigned, the waiting location after triage, the duration of symptoms or complaints before going to the ED, and identifying the discrepancy among the patients' groups in terms of age (years), gender, and frequency of ED experiences. Clinical data enabled a clearer understanding of the participants' individual contexts. Thus, most of the participants were admitted due to illness (85% of 381) and exempted (54.2% of 382) mostly via Cth, Linha saúde 24, INEM (33.8% of 207) or insufficient means (37.2% of 207).

Table 5.1. Descriptive statistics related to reason for administrative admission, availability, and type of exemption (clinical data).

	n	%
Reason for administrative admission		
Illness	324	85.0
Personal injury	18	4.7
Road accident	7	1.8
Workplace accident	8	2.1
Fall	24	6.3
Total	381	100.0
Availability of exemption		
Yes	207	54.2
No information	175	45.8
Total	382	100.0
Type of exemption		
Exemption via Cth, linha saúde 24 or INEM (emergency)	70	33.8
Users with insufficient means	77	37.2
Emergency department leading to hospitalisation	19	9.2
Users with degree of disability of 60% or more	29	14.0
Voluntary blood donors	4	1.9
Pregnant women and parturients	2	1.0
Firefighter (on duty)	3	1.4
Transferred from another hospital	2	1.0
Unemployed, registered at employment centres, spouses and minor children provided they are dependent	1	.5
Total	207	100.0

The participants' health system was mainly the National Health Service (82.7% of 382). More than half arrived accompanied (53.4% of 322), and most waited up to 15 minutes (96.6% of 381) for triage. In the assignment of triage colours, most cases were considered yellow or green (43.6% or 40.9% of 381). In the majority of the cases, the triage period process took up to five minutes (98.7% of 381). Based on their triage assignment, most participants were referred to the medical counter (Balcão [Méd.]) or general medicine (atendimento geral; 46.2% or 23.1%, respectively, of 381). Most had to wait for a longer period to see a doctor. In a considerable number of cases, it took up to two hours to see a doctor (84.2% of 380).

Table 5.2. Descriptive statistics related to waiting time for/after triage, triage period process, colour assigned in triage, and triage referral (clinical data).

	n	%
Waiting time for triage (waiting time between admission [arrival] and start of triage)		
No waiting period	17	4.5
Up to 5 minutes	227	59.6
Over 5 and up to 15 minutes	124	32.5
Over 15 and up to 30 minutes	10	2.6
Over 30 minutes and up to 1 hour	3	.8
Total	381	100.0
Colour assigned in triage		
Yellow	166	43.6
Green	156	40.9
White	8	2.1
Blue	6	1.6
Orange	43	11.3
Red	2	.5
Total	381	100.0
Waiting time between start of triage and end of triage (triage period process)		
No waiting period	66	17.3
Up to 5 minutes	310	81.4
Over 5 and up to 15 minutes	5	1.3
Total	381	100.0
Triage referral		
Orthopaedics	47	12.3
General medicine	88	23.1
Counter (med.)	176	46.2
Minor gen. surgery	24	6.3
Psychiatry	6	1.6
Trauma	19	5.0
Plastic surgery	6	1.6
Resuscitation	5	1.3
Cardiology	1	.3
Gastro	1	.3
Counter (surgery.)	8	2.1
Total	381	100.0
Waiting time after triage (waiting time between end of triage and seeing a doctor)		
No waiting period	7	1.8
Up to 15 minutes	120	31.6
Over 15 and up to 30 minutes	58	15.3
Over 30 minutes and up to 1 hour	71	18.7
Over 1 and up to 2 hours	64	16.8
Over 2 and up to 4 hours	48	12.6
Over 4 and up to 6 hours	12	3.2
Total	380	100.0

Most of the patients visited the ED in 2016 either once or twice (55% or 27%, respectively, of 382).

Table 5.3. Descriptive statistics related to the number of times in the emergency department (clinical data).

	n	%	Mean	Min	Max	SD
Number of times in the emergency department in 2016						
1	210	55.0	1.91	1	17	1.748
2	103	27.0				
3	35	9.2				
4	16	4.2				
5 or more	18	4.9				
Total	382	100				

Admissions were almost equally spread throughout the year. The majority of the patients spent up to six hours in the ED (74% of 381). Upon discharge, 80.6% (of 382) had independent mobility. Following discharge, the majority either went to an unspecified exterior or a regional health centre (44.2% or 30.1%, respectively, of 382).

Table 5.4. Descriptive statistics related to admission month, total time spent in the ED, mobility on discharge, and destination after discharge (clinical data).

	n	%
Admission date - month		
December - February	96	25.1
March - May	80	20.9
June - August	80	20.9
September - November	126	33
Total	382	100.0
Total time spent in ED		
Up to 1 hour	40	10.5
Over 1 and up to 3 hours	109	28.6
Over 3 and up to 6 hours	133	34.9
Over 6 and up to 12 hours	66	17.3
Over 12 and up to 24 hours	21	5.5
Over 24 and up to 48 hours	7	1.8
Over 48 hours	5	1.3
Total	381	100.0
Mobility on discharge		
Not applicable	17	4.5
Independent	308	80.6
Stretcher	35	9.2
Wheelchair	22	5.8
Total	382	100.0
Destination after discharge		
Unspecified exterior	169	44.2
Did not reply (no medical treatment)	6	1.6
Regional health centre	115	30.1
Day hospital	3	.8
Inpatient care	45	11.8
Outpatient appointment	40	10.5
Self-discharge (with medical treatment)	1	.3
Other hospital	3	.8
Total	382	100.0

Using clinical attributes as control factors, we decided to show some differences and the relationship between patients' perceptions and the clinical data we used as a reference point in this comparison.

5.1.1 Colour assigned in triage, waiting time for triage, after triage, and total time spent in the ED

According to a colour code, the screening process provides a general normal circuit that a patient follows when entering the ED. The Manchester Triage System, in general terms, helps identify health problems through a clinical evaluation based on patient health complaints and thus provides clinical priority for the patient. Five colours correspond to different levels of priority: red, orange, yellow, green, and blue. Each colour corresponds to a certain emergency situation and a specific waiting time. Patients assigned red have zero waiting time and need immediate care; patients with orange have around 10 minutes' waiting time and need nearly immediate care, as well; patients with yellow have around one hour's waiting time and need prompt care but can wait; patients with green have around two hours' waiting time and can wait to be attended to or can be referred to other health services; and patients with blue have around four hours' waiting time, and they can also wait or can be referred to other health services (Grupo Portugues de Triagem, Sistema de Triagem de Manchester, n.d).

Sometimes, patients may be assigned the wrong colour or triage category, which is described as under- and over-triage, which may have adverse consequences for patients due to delayed care as well as the overuse of ED resources (Lampi, 2017). The accuracy of triage is an important measure of healthcare quality because it determines the speed with which urgent care patients can be prioritised and attended to. Under- or over-triage can be associated with high risks of morbidity and mortality (Frykberg, 2005, Rehn et al., 2009). In Goldstein et al. (2017), the difference between correct triage for trauma and non-trauma

patients was not statistically significant. However, the researchers found that non-trauma patients were more likely to receive a higher triage category than necessary, while trauma patients had a higher likelihood of promotion (due to being assigned a lower triage category incorrectly; Goldstein et al., 2017). According to Sammons (2012), nurses' accuracy rate in triaging patients with potential acute myocardial infarction was 54%. The accuracy rate was determined by the age or experience of the nurses, with older nurses being more accurate than younger ones. In addition, the patient's race or ethnicity was a significant determinant of the accuracy of the triage category. Non-Caucasians were twice as likely to receive accurate triage compared to other ethnicities (Sammons, 2012). Patients with chest pain were more likely to receive correct triage than patients who did not present chest pain (Sammons, 2012); this mattered because electrocardiogram delay was significantly higher when patients did not present with chest pain and when the nurses were more experienced (Sammons, 2012). According to Lukin, Greenslade, Chu, Lang, and Brown (2015), older patients with trauma were more likely to be under-triaged compared to younger trauma patients. Assignment to categories 1 or 2 in the Australasian Triage Scale (ATS) for individuals aged 55–75 years and those aged 75 years and older was 30% and 50% lower, respectively, than patients in the 15–34 age group (Lukin et al., 2015). A multi-centre international study assessed the accuracy of triage in different hospitals in different countries. The study by Mistry and colleagues (2018) found that the mean accuracy rate was 59.2%. In addition, there was no difference in accuracy according to the nurses' experience. Medium-acuity conditions were more likely to be triaged with greater accuracy (76.4%) compared to high (44.1%) and low acuity (49%) conditions (Mistry et al., 2018). Patients and staff who assign a triage category can differ in terms of perceptions of urgency and the severity of the health condition, and these differences can provoke patient dissatisfaction (Toloo et al., 2016). Toloo et al. (2016) have confirmed the tendency for patients to over-rate their priority and to disagree with the actual triage category they were given, with over 48% of the participants expecting to be assigned higher priority and 20% expecting to be assigned lower priority, thus showing the discrepancy between patients' perceptions and nurses' assessments. Their results indicated that patients who expected a higher priority had a significant association with the number of ED visits ($\chi^2 = 11.6, p = 0.02$) and with the perceived need for urgent care ($\chi^2 = 16.5, p = 0.002$). These patients had a significantly stronger perception that the health condition was serious ($p \leq 0.01$), urgent ($p \leq 0.01$) and painful ($p = <0.01$), unlike other categories (Toloo et al., 2016).

We also have to pay attention to *agreement with colour assigned*; our test reveals that there are statistically significant differences between the categories in terms of colour assigned ($F(1,261)=22.04, p \leq 0.01$), which are represented in Table 5.5. More specifically, the test shows that participants who agreed with the colour assigned perceived their situation to be a lower severity level ($M=2.98, SD=0.70$) than those who did not agree with the colour assigned ($M=3.43, SD=0.58$).

Table 5.5. Differences related to the agreement with colour assigned in terms of colour assigned (survey data).

In terms of colour assigned	n	Mean	Min	Max	SD
Yes, I agreed with the colour assigned	198	2.98	2	4	0.70
No, I should have been assigned a more urgent colour	65	3.43	2	4	0.58
Total	263	3.09	2	4	0.70

Note: The table represents the values in terms of color assigned: 1) red, 2) orange, 3) yellow, 4) green, 5) blue, and 6) white.

The test was also significant in terms of the duration of symptoms or complaints before coming to the ED ($F(1,287)=4.51$, $p\leq 0.01$); this is represented in Table 5.5.1. We can see that participants who did not agree with the colour assigned expected to be assigned a higher priority level and tended to have symptoms or complaints for a longer period of time before going to the ED ($M=4.63$, $SD=1.79$) than those who agreed with the colour assigned ($M=4.07$, $SD=1.96$).

Table 5.5.1. Differences related to agreement with colour assigned in terms of duration of symptoms or complaints before going to the ED (survey data).

In terms of duration of symptoms or complaints	n	Mean	Min	Max	SD
Yes, I agreed with the colour assigned	217	4.07	1	7	1.96
No, I should have been assigned a more urgent colour	72	4.63	1	7	1.79
Total	289	4.21	1	7	1.94

Note: The table represents the values in terms of duration of symptoms or complaints: 1) up to 1 hour, 2) over 1 and up to 2 hours, 3) over 2 and up to 4 hours, 4) over 4 and up to 6 hours, 5) over 6 and up to 24 hours, 6) over 1 and up to 7 days, and 7) over 7 days.

The length of time that patients waited with symptoms before going to the ED may be influenced by several factors, including their insurance coverage or ability to pay. A study by Kirzinger, Cohen, and Gindi (2012) showed that 28% of uninsured patients in the 19–25 age group had to wait before receiving medical care due to costs compared to only 7.6% of individuals with private insurance and 10.1% of patients with public coverage. According to Bustamante et al. (2012), undocumented immigrants were more likely to delay a doctor visit than documented migrants, which shows that legal status could also influence healthcare access and utilisation. Delayed healthcare access or utilisation is likely to influence the quality of care that patients receive because they may present to the ED when the symptoms are much more difficult to treat.

The analysis of waiting time shows that the participants' perceptions are slightly consistent with the recorded data, with a significantly greater bias towards reporting longer waiting times than the ones recorded. Thompson et al. (1996) have noted that patients have some difficulty estimating a correct actual waiting time, taking into account physician waiting time (49.9% overestimated it, while 27.8% underestimated it) and total waiting time (24.5% overestimated it, and 38.9% underestimated it). The difference in this study between self-reported quantitative perceived waiting time and recorded (actual) waiting time is demonstrated in the following tables.

Table 5.6. Quantitative perceived waiting time and recorded waiting time for triage.

	Reported		Recorded		Difference
	n	%	n	%	%
No waiting period	46	12.6%	17	4.5%	8.1%
Up to 5 minutes	110	30.1%	227	59.6%	-29.5%
Over 5 and up to 15 minutes	114	31.1%	124	32.5%	-1.4%
Over 15 and up to 30 minutes	49	13.4%	10	2.6%	10.8%
Over 30 minutes up to 1 hour	25	6.8%	3	0.8%	6%
Over 1 hour	22	6%	0	0%	6%
Total	366	100%	381	100%	

Observing the discrepancy demonstrated above, we can conclude that 19.7% of respondents tended to accurately estimate the waiting time for triage, while 75.6% of patients overestimated it, and 4.7% underestimated it.

Table 5.6.1. Difference between self-reported and recorded waiting time for triage.

Longer self-reported time	75.6%
Same self-reported time	19.7%
Shorter self-reported time	4.7%

Self-reported quantitative perceptions and self-reported qualitative perceptions are significantly correlated in terms of waiting time for triage and waiting time after triage (respectively, $r = -0.60$ and $r = -0.73$, $p \leq 0.01$).

Table 5.7. Quantitative perceived waiting time and recorded waiting time after triage.

	Reported		Recorded		Difference
	n	%	n	%	%
No waiting period	20	5.6%	7	1.8%	3.8%
Up to 15 minutes	47	13.1%	120	31.6%	-18.5%
Over 15 and up to 30 minutes	57	15.9%	58	15.3%	0.6%
Over 30 minutes and up to 1 hour	76	21.2%	71	18.7%	2.5%
Over 1 and up to 2 hours	69	19.2%	64	16.8%	2.4%
Over 2 and up to 4 hours	61	17%	48	12.6%	4.4%
Over 4 and up to 6 hours	29	8.1%	12	3.2%	4.9%
Total	359	100%	380	100%	

According to the discrepancy above, we can conclude that 21% of respondents tended to accurately estimate the waiting time after triage, while 68.7% of patients overestimated it, and 10.3% underestimated it.

Table 5.7.1. Difference between self-reported and recorded waiting time after triage.

Longer self-reported time	68.7%
Same self-reported time	21%
Shorter self-reported time	10.3%

Self-reported quantitative perceptions are correlated with the recorded waiting time for triage, waiting time after triage, and total time spent in the ED, although with a lower magnitude (respectively, $r = 0.11$ with $p \leq 0.05$, $r = 0.39$ and $r = 0.41$, $p \leq 0.01$).

We also examined the *waiting location after triage*, the place where the patient spent the most time waiting to be seen after triage. As this can influence patients' perceptions about waiting time after triage, we decided to consider it regarding quantitative perceived (reported waiting time by patients using an exact time scale evaluation), qualitative perceived (reported waiting time by patients, using a 1 to 10 scale evaluation), and recorded waiting time after triage (from the hospital clinical database). The analysis was significant in the case of quantitative perceived waiting time after triage ($F(3,311) = 42.53$, $p \leq 0.01$), qualitative perceived waiting time after triage ($F(3,319) = 20.43$, $p \leq 0.01$), and recorded waiting time after triage ($F(3,325) = 6.62$, $p \leq 0.01$). The results represented in Table 5.8 revealed that participants in a waiting room perceived a longer waiting time after triage ($M = 4.66$, $SD = 1.40$ and $M = 4.70$, $SD = 2.75$) than those who spent the most time on a stretcher in the observation room ($M = 3.54$, $SD = 1.80$ and $M = 5.38$, $SD = 3.20$) or in an observation room ($M = 3.10$, $SD = 1.45$ and $M = 6.40$, $SD = 2.71$). However, we must note that participants in an observation room in reality waited longer after triage ($M = 2.56$, $SD = 1.52$) than

those who spent the most time on a stretcher in the observation room (M=2.13, SD=1.50), which does not align with patients' perceptions. Meanwhile, those who were treated immediately tended to underestimate the waiting time after triage (M=1.28, SD=0.46 vs. M=1.42, SD=0.77).

Table 5.8. Differences related to waiting location after triage in terms of waiting time after triage (quantitative perceived, qualitative perceived [1 to 10 scale], and recorded).

In terms of waiting time after triage	n			Mean			Min			Max			SD	
I was treated immediately	18	19	19	1.28	9.47	1.42	1	8	1	2	10	4	0.46	0.84
In an observation room	31	30	32	3.10	6.40	2.56	1	1	1	6	10	6	1.45	2.71
On a stretcher in the observation room	28	29	31	3.54	5.38	2.13	1	1	0	7	10	5	1.80	3.20
In a waiting room	238	245	247	4.66	4.70	2.84	2	1	0	7	10	6	1.40	2.75
Total	315	323	329	4.21	5.20	2.66	1	1	0	7	10	6	1.67	2.95

Note: The table represents the values for quantitative perceived, qualitative perceived and recorded waiting time after triage in terms of: n, Mean, Min, Max and SD. The category *on a stretcher, in the corridor* was eliminated because it had fewer than 17 respondents; *another situation* was also eliminated.

Note: The table represents the values in terms of waiting time after triage: 1) no waiting period, 2) up to 15 minutes, 3) over 15 and up to 30 minutes, 4) over 30 minutes and up to 1 hour, 5) over 1 and up to 2 hours, 6) over 2 and up to 4 hours, and 7) over 4 and up to 6 hours.

Table 5.9. Quantitative perceived and recorded total time spent in the ED.

	Reported		Recorded		Difference
	n	%	n	%	%
Up to 1 hour	14	3.9%	40	10.5%	-6.6%
Over 1 and up to 3 hours	87	24.3%	109	28.6%	-4.3%
Over 3 and up to 6 hours	128	35.8%	133	34.9%	0.9%
Over 6 and up to 12 hours	79	22.1%	66	17.3%	4.8%
Over 12 and up to 24 hours	30	8.4%	21	5.5%	2.9%
Over 24 and up to 48 hours	13	3.6%	7	1.8%	1.8%
Over 48 hours	7	2%	5	1.3%	0.7%
Total	358	100%	381	100%	

Regarding the discrepancy shown above in Table 5.9, we note that 37.3% of respondents tended to accurately estimate the total time spent in the ED, while 41.7% of patients overestimated it, and 21.1% underestimated it.

Table 5.9.1. Difference between self-reported and recorded total time spent in the ED.

Longer self-reported time	41.7%
Same self-reported time	37.3%
Shorter self-reported time	21.1%

Another waiting time that should be mentioned is the waiting time for examinations and/or tests. Unfortunately, we did not obtain the necessary clinical/recorded data due to its absence in the computer database. However, it is possible to discern the difference between quantitative and qualitative perceived waiting time for examinations and/or tests. In order to do so, we decided to refer this question to the *type of examinations and/or tests done*, with multiple answers and the possibility of marking more than one option, which were as follows: tests (blood, urine, etc.), X-ray, CT scan, ultrasound, endoscopy, and other. Concerning the *type of examinations and/or tests*, the test reveals statistically significant differences in terms of the following types: tests (blood, urine, etc.), CT scan, and ultrasound. This difference is observed in relation to the quantitative and qualitative perceived waiting time for examinations and/or tests. The results that refer to the tests (blood, urine, etc.) show that the analysis is significant in the case of quantitative perceived ($F(1,303)=7.02$, $p\leq 0.01$) and qualitative perceived

($F(1,309)=7.64$, $p\leq 0.01$) waiting time for examinations and/or tests, while CT scan ($F(1,303)=4.61$, $p\leq 0.01$) and ultrasound ($F(1,303)=5.53$, $p\leq 0.01$) were significant only in the case of quantitative perceived waiting time for examinations and/or tests with no statistically significant differences regarding qualitative perceived waiting time. Patients who had tests (blood, urine, etc.) perceived a longer waiting time for examinations and/or tests ($M=3.87$, $SD=1.61$ and $M=5.70$, $SD=2.58$) than those who did not ($M=3.36$, $SD=1.49$ and $M=6.57$, $SD=2.71$). The same is applicable in terms of CT scan ($M=4.13$, $SD=1.65$) and ultrasound ($M=4.13$, $SD=1.59$). These patients tended to declare a longer waiting time for examinations and/or tests than those who did not have a CT scan ($M=3.62$, $SD=1.57$) and ultrasound ($M=3.60$, $SD=1.57$). This example thus demonstrates that quantitative and qualitative perceived waiting time do not always reflect complementary notions.

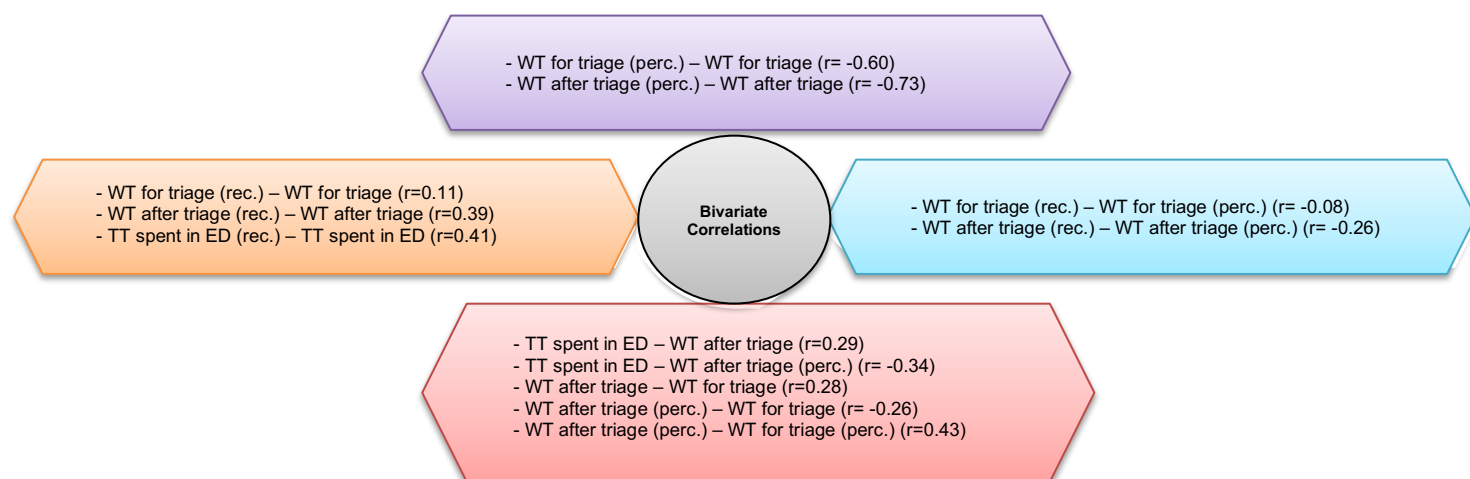
Diagnostic examination is an important part of healthcare delivery in the ED, although it also contributes to ED crowding (Kawano, Nishiyama & Hayashi, 2015). According to Kawano and colleagues (2015), ordering laboratory tests adds 80 minutes to the ED length of stay. The use of point-of-care testing (POCT) in the ED has been explored to shorten the time to decision-making and treatment and thus reduce the time spent in the clinical pathway. Gilkar, Fink, Eardley, and Barron (2013) have reported that POCT reduced patient waiting times (23 minutes between requesting a test and receiving the results using POCT compared to 60 minutes in a typical laboratory setting, 167 minutes between arrival and discharge for POCT group compared to 208 minutes for the clinical laboratory group; Gilkar et al., 2013). In addition, the use of POCT improved the quality of healthcare because it could reliably identify the requesting clinician and patient and ensure that the results were delivered to the right patient (Gilkar et al., 2013).

Perceived waiting times may have an effect on patient satisfaction with care (Magro & Aquilina, 2016). If the waiting time is shorter, patients are likely to have more confidence in the healthcare process and perceive staff to be more compassionate (Spaite et al., 2002, Bleustein et al., 2014). There is also an association with the acuity level. Patients whose acuity was 'emergent' had more favourable perceived throughput times and thus higher satisfaction scores compared to patients whose acuity was 'urgent' or 'routine' (Boudreaux et al., 2004). In the study, the researchers reported that the findings supported the hypothesis that perceived throughput time mediated the acuity-satisfaction association. Hedges et al. (2002) have demonstrated that perceived waiting times can be important predictors of overall ED satisfaction regardless of acuity. In addition, there have been efforts to implement measures such as informing patients how long they are likely to wait (Dansky & Miles, 1997), keeping patients occupied during the wait period (Dansky & Miles, 1997), using public information systems to provide clear instructions (Oermann et al., 2003, O'Neill et al., 2004), and educating patients (Oermann et al., 2002).

We now present a broader illustration concerning bivariate correlations among self-reported quantitative perceptions (reported waiting time by patients using an exact time scale evaluation), self-reported qualitative perceptions (reported waiting time by patients using a 1 to 10 scale evaluation), and recorded data (recorded waiting time scale from the hospital clinical database) that refer to waiting time for triage, waiting time after triage, and total time spent in the ED. First, we considered correlations

between self-reported quantitative perceptions and self-reported qualitative perceptions (represented at the top of Diagram 2), followed by self-reported quantitative perceptions and recorded data (represented on the left side of Diagram 2), self-reported qualitative perceptions and recorded data (represented on the right side of Diagram 2), and finally, we also added some moderate and weak (negative/positive) correlations among the groups (represented at the bottom of Diagram 2).

Diagram 2. Correlations between waiting time for triage, waiting time after triage, and total time spent in the ED.



Note: WT. – waiting time; TT. – total time; Rec. – recorded data; Perc. – self-reported qualitative perception.

We have already mentioned and discussed some correlations, and as we can see, among others, recorded waiting time tended to be very weakly correlated with self-reported qualitative perceived waiting time, even though it had a slightly stronger correlation in terms of waiting time after triage ($r = -0.08$ and $r = -0.26$). In terms of correlations between the groups, we can observe some weak correlations between total time spent in the ED and self-reported waiting time after triage ($r = 0.29$ and $r = -0.34$). In turn, self-reported waiting time after triage is weakly correlated with self-reported waiting time for triage, although it is moderately correlated in terms of self-reported qualitative perceptions of the given waiting time (respectively, $r = 0.28$, $r = -0.26$, and $r = 0.43$).

Finally, we need to look at the whole picture and the differences across the colour assigned in triage; see Table 5.10 below.

Table 5.10. Differences across color assigned in triage.

Colour assigned in triage	Waiting time for triage			Waiting time after triage			Total time spent in ED		
	Longer self-reported time	Same self-reported time	Shorter self-reported time	Longer self-reported time	Same self-reported time	Shorter self-reported time	Longer self-reported time	Same self-reported time	Shorter self-reported time
Orange	65%	26 %	9%	57%	37%	6%	46%	22%	31%
Yellow	80%	15%	4%	72%	15%	13%	39%	39%	23%
Green	83%	13%	4%	75%	22%	4%	44%	41%	15%
Total	78%	17%	5%	70%	21%	9%	42%	36%	22%
Colour assigned in triage (from clinical records)									
Orange	69%	21%	10%	69%	28%	3%	35%	32%	32%
Yellow	75%	20%	5%	69%	21%	9%	41%	34%	25%
Green	77%	20%	3%	66%	20%	14%	45%	40%	14%
Total	76%	20%	5%	69%	21%	10%	42%	37%	21%

Note: In the given context, we decided to eliminate some of the categories (red, blue, and white) as they had fewer than 17 respondents.

The differences across the colour assigned in triage, represented in Table 5.10, indicate that most patients assigned green, yellow, and orange colours tend to overestimate the waiting time for triage (78%) and after triage (70%), and the total time spent in the ED (42%). Using the colour assigned in triage from clinical records, we can see that the results are quite consistent with those stated above, albeit with minor differences.

5.1.2 Differences among the groups in terms of gender, age, and frequency of ED experiences.

After considering waiting time perceptions together with the colour assigned in triage, we need to determine whether female and male patients, depending on age and frequency of ED experiences, differ in their perceptions. These results are represented in Table 5.11 and Table 5.12 below.

Table 5.11. Differences related to gender.

Gender	Waiting time for triage			Waiting time after triage			Total time spent in ED		
	Longer self-reported time	Same self-reported time	Shorter self-reported time	Longer self-reported time	Same self-reported time	Shorter self-reported time	Longer self-reported time	Same self-reported time	Shorter self-reported time
Female	77.7%	18.3%	4.0%	70.3%	19.6%	10.0%	43.6%	36.4%	20.0%
Male	72.3%	22.0%	5.7%	65.9%	23.2%	10.9%	38.7%	38.7%	22.6%
Total	75.6%	19.7%	4.7%	68.7%	21.0%	10.3%	41.7%	37.3%	21.1%

We should note that the majority of both female and male patients overestimated the waiting time for triage (75.6%) and after triage (68.7%). However, an equal percentage of male patients tended to overestimate the total time spent in the ED (38.7%) and accurately estimate the total time spent in the ED (38.7%), while 43.6% of female patients still tended to overestimate this time.

Table 5.12. Differences related to age (years), frequency of ED experiences (in 2016) in terms of total time spent in the ED.

Age (years)	n	Mean	Min	Max	SD
Longer self-reported time	149	52.23	20	92	19.76
Same self-reported time	133	49.42	20	90	20.16
Shorter self-reported time	75	58.37	21	92	20.62
Total	357	52.89	20	92	20.31
Frequency of ED experiences					
Longer self-reported time	97	2.75	1	20	2.94
Same self-reported time	90	1.66	1	6	1.04
Shorter self-reported time	55	2.31	1	14	2.19
Total	242	2.24	1	20	2.27

A post-hoc test reveals statistically significant differences between the categories in terms of age ($F(2,354)=4.80$, $p=0.009$) and frequency of ED experiences ($F(2,239)=5.70$, $p=0.004$). More specifically, the test shows that younger patients ($M=49.42$, $SD=20.16$) and less frequent users of the ED ($M=1.66$, $SD=1.04$) tended to accurately estimate the total time spent in the ED, while those who are older and are more frequent users of the ED have a tendency to overestimate or underestimate this time.

5.2 Conclusion

We can conclude that this kind of comparison among quantitative perceived, qualitative perceived, and recorded waiting times allows us to better understand patient evaluation bias, the interaction between each, and its prevalence and difference among the group. Recorded (actual) waiting time helps identify those patients whose waiting time perceptions differ from the reality. Our results show that patients (both female and male) are not very accurate in their perceptions regarding waiting times, as there is significantly greater bias towards reporting longer waiting times than the ones recorded.

However, we identified the difference between older patients and more frequent users of the ED and younger patients and less frequent users of the ED. Thus, differences exist in terms of age and frequency of ED experiences.

As we can see, *colour assigned in triage* may influence waiting time perceptions with some discrepancies between the categories, and *duration of symptoms or complaints before going to the ED* may have an effect on how patients perceive the colour assigned, which in turn can cause agreement or disagreement with the colour assigned. *Waiting location after triage* may influence perceptions about quantitative and qualitative perceived waiting time after triage. The analysis was significant in the case of quantitative perceived, qualitative perceived, and recorded waiting time after triage. Among various *types of examinations and/or tests*, only some of them show statistically significant differences in terms of quantitative and qualitative perceived waiting time for examinations and/or tests, and two of them (CT scan and ultrasound) were significant only in the case of quantitative perceived waiting time. Thus, this shows some distinction regarding quantitative and qualitative perceived waiting time.

6. Predictors of patient satisfaction/perceived quality of healthcare

6.1 Correlations with satisfaction and perceived quality of healthcare

Patient satisfaction with the ED is the reason patients may select a particular ED or recommend it to others (Kardanmoghadam et al., 2015). It is an important metric because patients' viewpoints and expectations are necessary to improve the quality of healthcare services (Kardanmoghadam et al., 2015). However, the relationship between expectation and satisfaction is unclear (Batbaatar et al., 2015). Since healthcare is targeted at patients, it is only natural that their expectations and ideas are incorporated into the delivery of healthcare services. Numerous factors may influence patient satisfaction with the ED. According to Tanniru and Khuntia (2017), the experience with nursing care, communication, and infrastructure in the ED influence overall satisfaction. Patient factors that may influence satisfaction include age, gender, income, education level, expectations, marital status, and place of living (Kardanmoghadam et al., 2015). Hospital-related factors such as staff, waiting times, facilities, and processes may also have an effect (Farley et al., 2014). Hence, the concept of satisfaction can be measured in many ways; it is thus not easy to define, but it still needs to be developed (Taylor & Bengner, 2004; Batbaatar et al., 2015).

The term 'quality of healthcare' means different things according to different stakeholders. The Institute of Medicine's (IOM; 2001) *Crossing the Quality Chasm* is a framework for the quality of healthcare, and it provides guidelines with which to evaluate and determine the quality of healthcare delivery. The report conceptualises quality of care along six dimensions: safety, efficiency, effectiveness, timeliness, equity, and patient-centredness (IOM, 2001). The WHO also defines quality of healthcare via six dimensions: effective, efficient, accessible, acceptable/patient-centred, equitable, and safe (2006). Communities and service users, health-service providers, and policy and strategy developers all have roles and responsibilities to ensure the delivery of quality healthcare (WHO, 2006).

In an attempt to understand the differences and/or similarities between satisfaction and perceived quality of healthcare in our statistical analysis, we decided to run bivariate correlations between all relevant variables from the model. The results show that the two core variables of this study, satisfaction and perceived quality of healthcare, are strongly correlated ($r=0.80$). In addition, the results show several relevant correlations among satisfaction, perceived quality of healthcare, and other variables. More specifically, first, we observed correlations between satisfaction and all the other variables represented in Diagram 3. This diagram is divided into three sections: on the left side are variables that are strongly correlated with satisfaction, on the right side are variables that are moderately correlated with satisfaction, and at the bottom of the diagram are variables that are (positively or negatively) weakly correlated with satisfaction. The strongest correlations with satisfaction among five variables in our diagram have meeting expectations ($r=0.83$) and confidence/trust in the ED ($r=0.78$).

Among ED personnel, a strong correlation with satisfaction ultimately only referred to doctors ($r=0.65$); other ED staff had moderate correlation with satisfaction, including staff at the registration counter ($r=0.54$), staff conducting the triage ($r=0.51$), nursing personnel ($r=0.58$), auxiliary staff ($r=0.44$), and health technicians ($r=0.58$).

In a study by Cooke, Watt, Wertzler, and Quan (2006), 92.1% of patients identified the use of plain language by a doctor as important for their care, while 90.8% said that it was important to them that doctors explain what happened during each step of the physical examination. Mercer, Hernandez-Boussard, Mahadevan, and Strehlow (2013) have found that patient satisfaction was higher among those who could correctly identify their physicians and those who had a shorter door-to-doctor waiting time compared to those who could not correctly identify their physician or who had longer waiting times before seeing their doctors. Thus, the doctor-patient relationship and communication can greatly influence patient satisfaction (Ha & Longnecker, 2010). The ED doctors' roles in the delivery of quality care revolve around thorough patient examination and ordering the correct diagnostic tests, providing the right treatment, and requesting follow-ups to continue assessment. According to Boudreaux et al. (2000), physician care, including care and concern shown, while giving advice and during follow-up, and how well doctors explained the treatment and tests and kept the patient informed were a strong predictor of overall patient satisfaction.

Just as doctors do, nurses also play an important role in the ED. The aspects of emergency nursing care that can impact patient satisfaction include openness and receptiveness to others, genuine concern for patients, taking moral responsibility, and being truly present and attentive during patient care (Curtis & Wiseman, 2008). Thus, effective communication and establishing good interpersonal relationships with patients can help improve patient satisfaction scores. The roles of nurses in the ED influence the quality of care because early recognition and addressing of symptoms can determine the quality of patient outcomes (Wiley, 2017). Boudreaux et al. (2000) have argued that nursing care includes care and concern, keeping patients informed about delays, technical skills, the extent to which nursing staff showed that they cared for the patient, the courtesy they expressed, and keeping family and friends informed, all of which were associated with patient satisfaction ($p \leq 0.05$).

At the registration counter upon arrival at the ED, staff take patient details before leading them to waiting rooms or triage. Registration may be a bottleneck in the ED process if patients take too long to be registered. Other factors included the registration person's courteousness, helpfulness, and the privacy they gave the patient (Boudreaux, d'Autremont, Wood & Jones, 2004). In their study, Boudreaux et al. (2004), report that satisfaction with the registration process was a significant predictor of patient satisfaction with the overall ED experience.

Triage nurses conduct triage in most emergency rooms. The factors that affect patient satisfaction in nurse-led triage include communication skills, the ability to provide patient-centred care, nurse competence and caring abilities, the ability to answer questions and use jargon-free language, and giving patients the opportunity to ask questions (Rehman & Ali, 2016). Multidisciplinary team triage may also be involved in conducting triage (Richardson et al., 2004). Involving a multidisciplinary team may enable to reduce patient waiting times and eliminate many procedures between patient arrival and treatment (Richardson et al., 2004). For example, physician-led triage reduced the patient's overall length of stay in the ED compared to a nurse-led triage because the physician was involved in addressing and initiating

treatment for non-urgent cases at triage rather than after (Burstrom et al. 2015). This improved overall ED efficiency and throughput.

With regard to waiting time, we consider qualitative perceived waiting time (with a 1 to 10 scale evaluation) and quantitative perceived waiting time (with an exact time scale evaluation). Qualitative perceptions about waiting time in our case have a stronger correlation than quantitative evaluation of waiting time, as we can see in Diagram 3. However, waiting time from when the patient was informed about discharge until the patient left the hospital does not appear in Diagram 3 due to very weak negative correlation ($r = -0.18$), but qualitative perception about this waiting time has a moderate positive correlation with satisfaction ($r = 0.44$).

Hemaya and Locker (2012) have noted a consistent association of perceived waiting time with satisfaction and, at the same time, a lack of knowledge regarding actual waiting time. In Xie and Or's (2017) study, actual waiting time was negatively associated with patient satisfaction. For example, a study by Boudreaux, Friedman, Chansky, and Baumann (2004) has shown that perceived throughput times had a higher correlation with overall ED satisfaction compared to actual throughput times ($r = 0.62$ versus -0.12). Thompson et al. (1996) have suggested that actual waiting time is not associated with overall satisfaction, unlike perceived waiting time, emphasising the importance of managing waiting time perceptions rather than decreasing actual waiting time. In our case, quantitative perceived waiting time is associated with satisfaction but with a lower magnitude, depending on the waiting time interval under investigation and its comparison among different categories. Nevertheless, we should assume that qualitative perceived waiting time is expected to be the best predictor of satisfaction and perceived quality of healthcare.

In our study, age was ultimately weakly correlated with satisfaction ($r = 0.20$). Variables with very weak positive correlation (below 0.20) and very weak negative correlation (below -0.20) were excluded from Diagram 3.

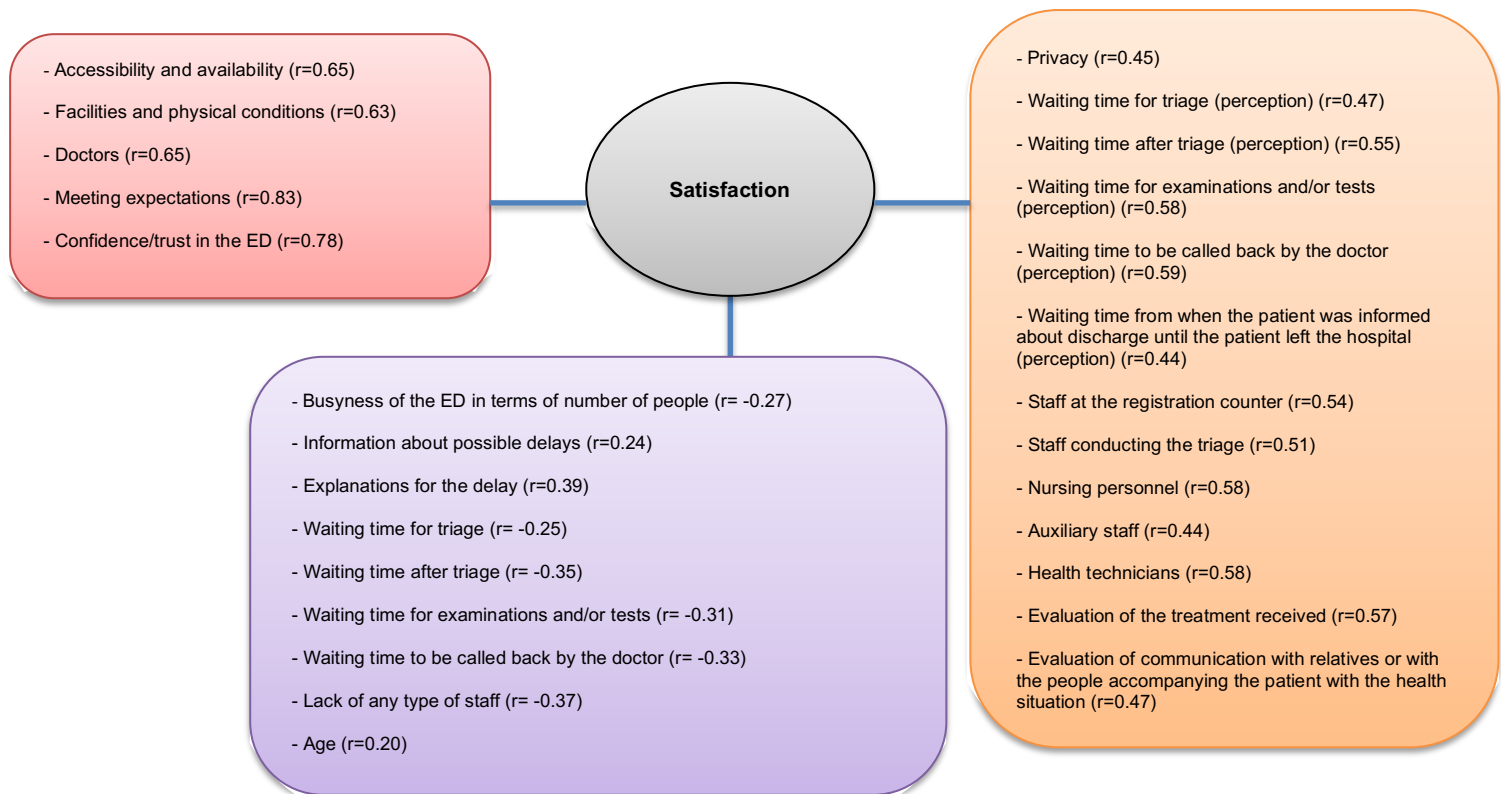
Further, we decided to observe correlations between perceived quality of healthcare and all other variables represented in Diagram 4. This diagram is also divided into three sections: on the left side are variables that are strongly correlated with perceived quality of healthcare, on the right side are variables that are moderately correlated with perceived quality of healthcare, and at the bottom of the diagram are variables that are (positively or negatively) weakly correlated with perceived quality of healthcare.

In general, satisfaction and perceived quality of healthcare have similar correlation coefficients. In comparison with satisfaction, there are more variables that have a strong correlation with perceived quality of healthcare. The strongest correlations with perceived quality of healthcare among eight variables in our diagram are confidence/trust in the ED ($r = 0.79$) and doctors ($r = 0.76$).

In the case of satisfaction, meeting expectations had a stronger correlation, while in terms of perceived quality of healthcare, it was still strong ($r = 0.70$), but three other variables also appeared to have a strong correlation: evaluation of communication with relatives or with the people accompanying the patient about the health situation ($r = 0.70$), evaluation of the treatment received ($r = 0.66$), and nursing

personnel ($r=0.61$). These three variables are moderately correlated with satisfaction, while with perceived quality of healthcare, they have a strong correlation.

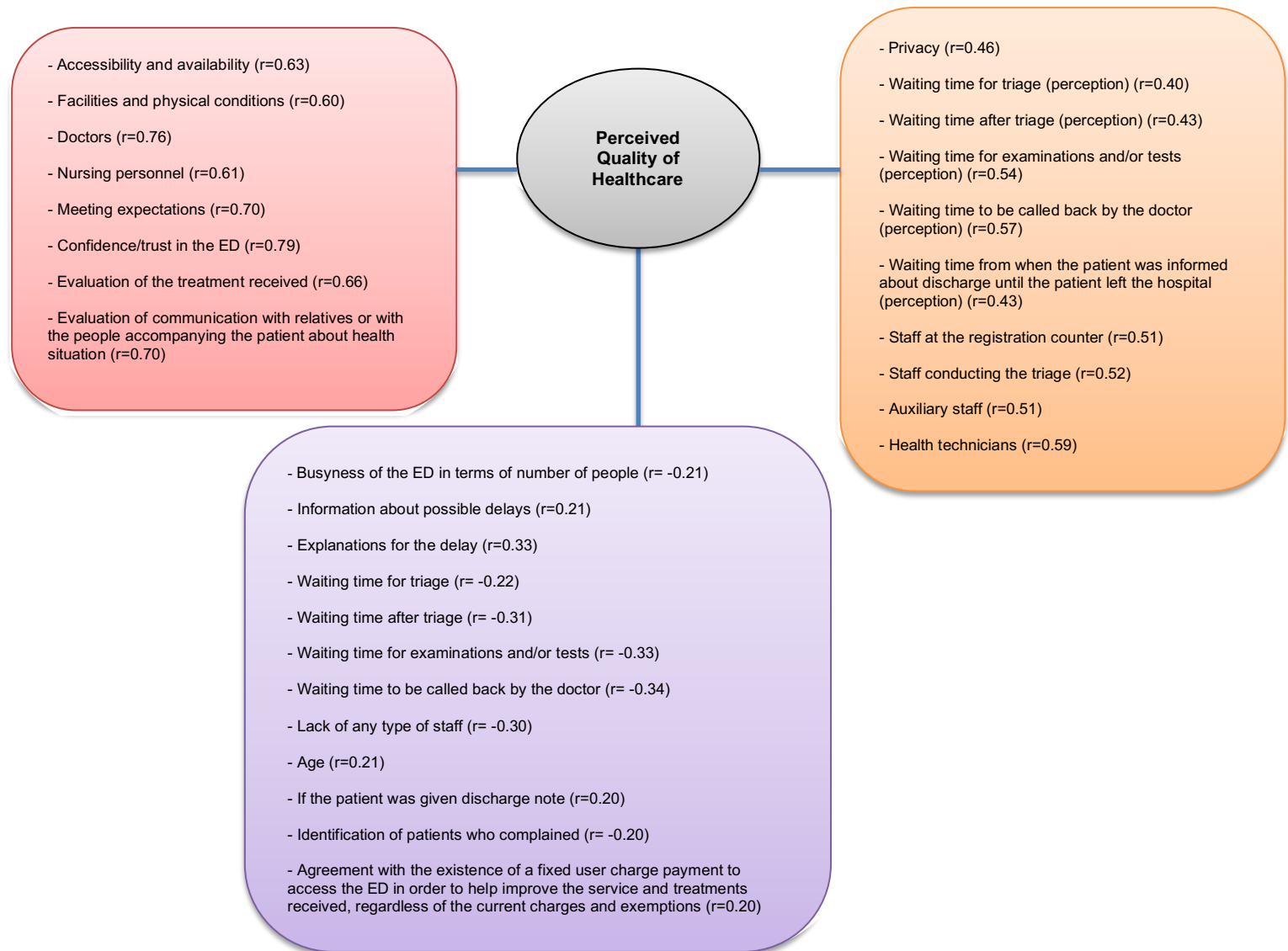
Diagram 3. Correlations between satisfaction and all other variables.



We do not observe another three variables in the case of satisfaction, but they are weakly correlated with perceived quality of healthcare: discharge note given to a patient ($r=0.20$), identification of patients who complained ($r=-0.20$), and agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions ($r=0.20$). We note that, in terms of payment perception, we had two dimensions: current payment of fixed user charge that may influence the quality of the service and treatment ($r=0.09$), which were excluded from Diagram 4 due to a very weak correlation with perceived quality of healthcare, and agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions ($r=0.20$), which was included in Diagram 4.

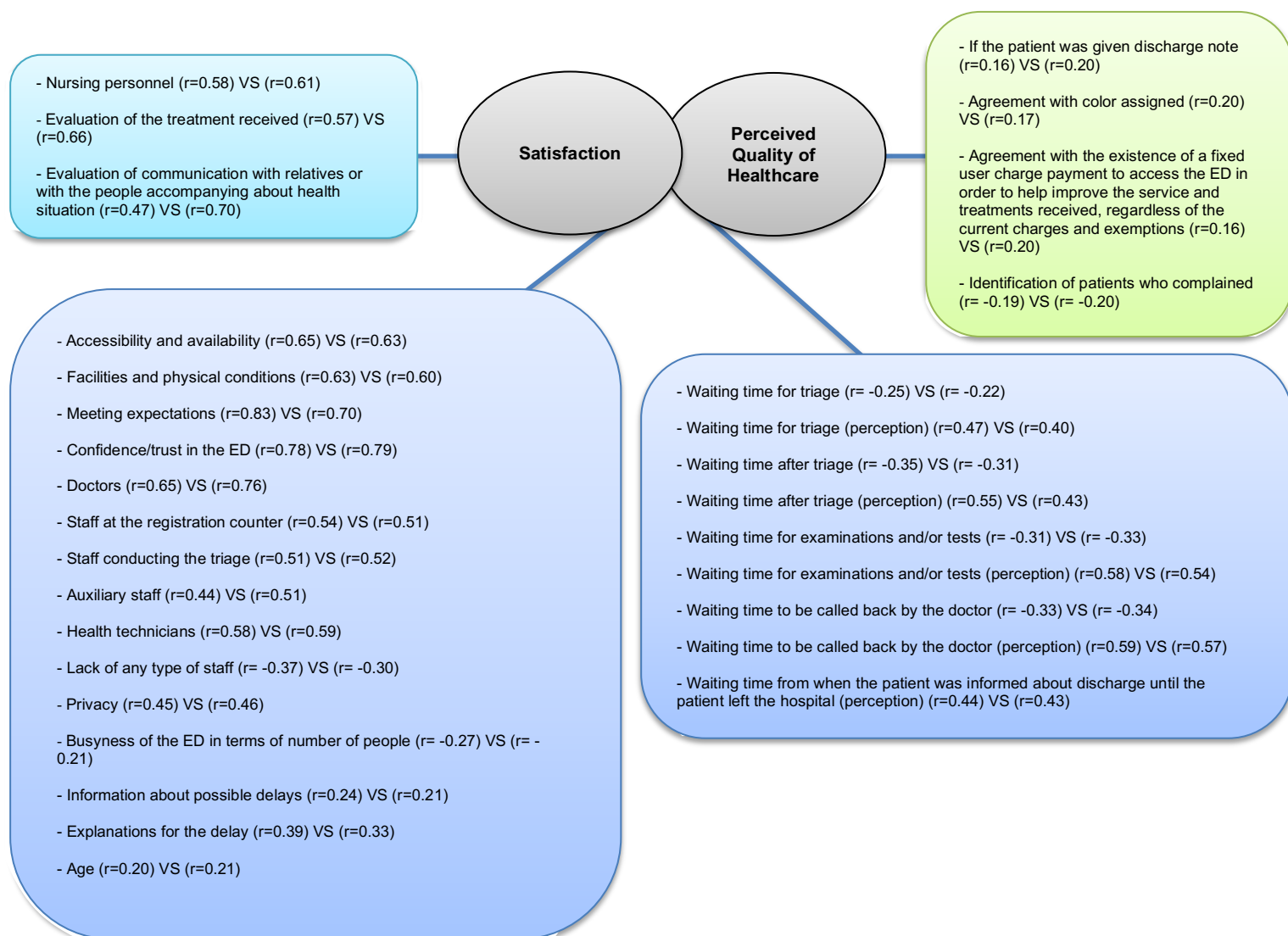
Agreement with the colour assigned, which was weakly correlated with satisfaction, did not appear in Diagram 4 due to very weak correlation with perceived quality of healthcare ($r=0.17$). As we mentioned before, variables with very weak positive correlation (below 0.20) and very weak negative correlation (below -0.20) were excluded from Diagram 4.

Diagram 4. Correlations between perceived quality of healthcare and all other variables.



After we considered the correlations among satisfaction, perceived quality of healthcare, and other variables, we note that, even though the two are closely related concepts, they still differ, and patients correlate different variables with each. Diagram 5 shows this difference and is divided into three sections: on the left side are variables that have different degrees of correlation (moderate vs. strong) in terms of satisfaction and perceived quality of healthcare, on the right side are variables that separate satisfaction and perceived quality of healthcare according to inclusion criteria (weak vs. very weak correlation), and at the bottom of the diagram are variables that unite satisfaction and perceived quality of healthcare.

Diagram 5. Concepts of satisfaction and perceived quality of healthcare.



As Diagram 5 shows, satisfaction and perceived quality of healthcare have much in common, and there are more variables (24) that unite them than separate them (four). The latter four variables differ slightly in terms of patients' views. Agreement with the colour assigned, for example, can be perceived as a more relevant issue in terms of satisfaction, ($r=0.20$) vs. ($r=0.17$), but less so in terms of perceived quality of healthcare. The opposite situation happens with the other three variables where, for example, discharge note given to a patient ($r=0.20$) vs. ($r=0.16$); identification of patients who complained, ($r=-0.20$) vs. ($r=-0.19$); and agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, ($r=0.20$) vs. ($r=0.16$), may be slightly more relevant in terms of perceived quality of healthcare than in terms of satisfaction.

Another three variables have slightly different degrees of correlation (moderate vs. strong) in the case of satisfaction and perceived quality of healthcare. In terms of ED personnel, patients relate nursing personnel to perceived quality of healthcare, ($r=0.61$) vs. ($r=0.58$), as more relevant than to satisfaction. The same situation happens with two other variables; for example, the evaluation of communication with

relatives or with the people accompanying the patient about the health situation, ($r=0.70$) vs. ($r=0.47$), and evaluation of the treatment received, ($r=0.66$) vs. ($r=0.57$), may be better predictors of perceived quality of healthcare than of satisfaction.

The set of 24 variables in common between satisfaction and perceived quality of healthcare from the bottom of Diagram 5 proves the similarity of these two concepts with similar correlation coefficients. Regarding ED personnel, we can mention that the strongest correlation with satisfaction and perceived quality of healthcare is doctors ($r=0.65$) vs. ($r=0.76$), the weakest correlation among ED personnel with the two concepts is auxiliary staff ($r=0.44$) vs. ($r=0.51$), and in case of perceived quality of healthcare, staff at the registration counter also have the same correlation coefficient ($r=0.51$). The question that aimed to investigate whether patients felt there was a lack of any type of staff showed weak correlation with both satisfaction and perceived quality of healthcare ($r= -0.37$) vs. ($r= -0.30$). In turn, it showed weak correlation with all ED personnel, which was distributed in descending order as follows: health technicians ($r= -0.30$), auxiliary staff ($r= -0.29$), staff conducting the triage ($r= -0.29$), nursing personnel ($r= -0.28$), staff at the registration counter ($r= -0.26$), and doctors ($r= -0.22$). Lack of staff in the ED may provoke an increase in waiting times, as patients have to wait longer to be attended to, which may lower their satisfaction with healthcare. Days with the lowest quartile of nursing hours had a 28.2-minute increase in the door-to-discharge length of stay per patient compared to days with the highest quartile of nursing hours (Ramsey, Palter, Hardwick, Moskoff, Christian & Bailitzm 2018). The findings were independent of ED admission rate, volume, or hospital occupancy. In addition, the staff may not attend to a patient fully if they are trying to spread themselves out; thus, they may miss some patient details during the assessment, testing, or treatment processes. This may have negative effects on quality of care (Bradley, Kamwendo, Chipeta, Chimwanza, Pinho & McAuliffe, 2015).

Furthermore, we have to emphasise different intervals of waiting time evaluation. Waiting time for triage is the time between arrival and triage. This time may vary across EDs, hospitals, regions, and even countries, depending on the efficiency of the ED and the healthcare system. This time may be spent simply waiting if there is a queue or performing activities such as registration. Storm-Versloot et al. (2014) have used the Manchester Triage System to investigate the waiting time for triage in the ED and patient satisfaction. The patient waiting time for triage was defined based on the urgency level. The results indicate that patients having shorter waiting times had a significant relationship with their overall satisfaction ($p = 0.021$), while those with longer waiting times recorded an inverse relationship, although it was not statistically significant ($p = 0.121$). Waiting time for triage is a bottleneck in the ED patient flow and is thus targeted in various patient waiting time reduction measures. Such measures ensure that patients are triaged at the door and that registration is conducted during triage or assessment. When triage is done on arrival, the waiting time to initial assessment by a nurse or provider is significantly reduced or eliminated altogether. Rutman, Migita, Woodward, and Klen (2015) have investigated the impact of a lobby nurse, or placing a nurse in the lobby, to conduct rapid assessment and triage on patient waiting times. The patient is then transferred to a medical provider team to conduct further assessments and take the vital signs, complaints, and history of the patient. The researchers observed that, in this scenario, there

was a reduction in time to provider, time-to-room, and time-to-visual assessment. The median time to provider decreased from 43 minutes to fewer than 10 minutes, while the waiting time from triage to room decreased from 16 to five minutes (Rutman et al., 2015). The time to nurse assessment decreased from seven to zero minutes (Rutman et al., 2015). In addition, the number of patients seen within the first 30 minutes of arrival improved from 35% to 93% (Rutman et al., 2015). The overall length of stay in the ED decreased from 168 minutes to 153 minutes (Rutman et al., 2015).

In terms of quantitative perceived waiting time evaluation, the strongest negative correlation with satisfaction in our case was waiting time after triage ($r = -0.35$), and with perceived quality of healthcare, it was waiting time to be called back by the doctor after the examinations and/or tests ($r = -0.34$).

Waiting time after triage varies according to the procedures to be undertaken. Waiting time after triage can be lengthy depending on the acuity of presenting conditions and the number of procedures to be undertaken. In work by Mohammad (2008), the mode of transportation influenced the length of time patients had to wait to be seen by a doctor. The average waiting time for patients who arrived by ambulance was 30 ± 37 minutes, the average waiting time for walk-ins was 34 ± 44 minutes ($p = 0.535$), and that of public transport services was 55 ± 105 minutes ($p = 0.664$; Mohammad, 2008). Ambulance patients were more likely to be admitted to the intensive care unit compared to walk-ins ($p = 0.02$) and those taking public transport service ($p = 0.47$; Mohammad, 2008).

Physician assessment during triage has been reported to be useful in reducing the waiting time, at least for some patient groups (Choi et al., 2006). Patients who present with conditions that do not require further investigation can be assessed and discharged directly from triage (Cooke et al., 2003), which reduces the overall time spent in the ED, and it frees up critical ED resources.

Total time spent in the ED, in our case, was ultimately very weakly correlated both with satisfaction and perceived quality of healthcare, ($r = -0.14$) vs. ($r = -0.16$). Omitting the evaluation of quantitative perceived waiting time from when the patient was informed about discharge until the patient left the hospital due to its very weak correlation with satisfaction and perceived quality of healthcare and its exclusion from the diagrams, ($r = -0.18$) vs. ($r = -0.17$), we can say that the weakest correlation was waiting time for triage, ($r = -0.25$) vs. ($r = -0.22$).

Observing the waiting time for examinations and/or tests, its quantitative perceived values are very similar in the case of satisfaction ($r = -0.31$) and perceived quality of healthcare ($r = -0.33$). However, its qualitative perceived values are much higher in terms of satisfaction ($r = 0.58$) and perceived quality of healthcare ($r = 0.54$), which proves the importance of qualitative perceived values over the quantitative perceived values of waiting time.

With regard to qualitative perceived waiting time, we can say that the strongest correlation here with satisfaction and perceived quality of healthcare was waiting time to be called back by the doctor after the examinations and/or tests, ($r = 0.59$) vs. ($r = 0.57$), while the weakest correlation in terms of satisfaction was waiting time from when the patient was informed about discharge until the patient left the hospital, ($r = 0.44$); in terms of perceived quality of healthcare, it was waiting time for triage, ($r = 0.40$). As we can see in the case of perceived quality of healthcare, the strongest and the weakest correlation in

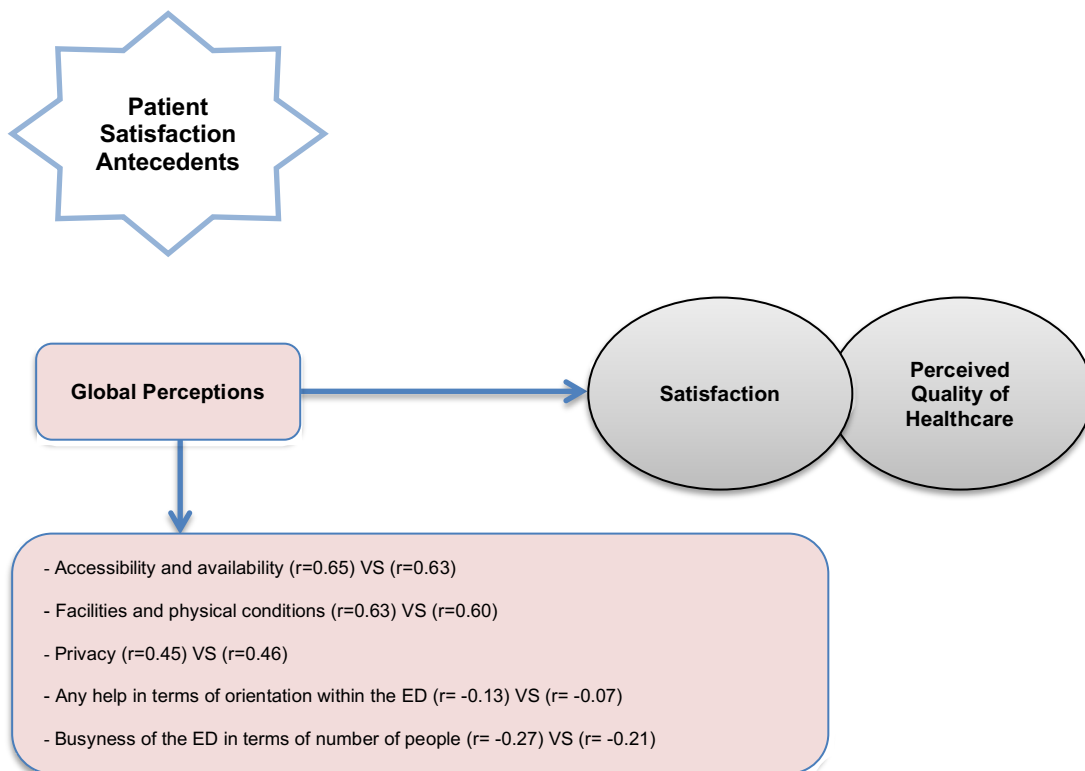
both quantitative and qualitative perceived evaluation of waiting time are the same variables, while in the case of satisfaction in both quantitative and qualitative perceived evaluation of waiting time, they are different variables.

6.1.1 Correlations according to the proposed model - antecedents

In this section, we organise correlations with satisfaction and perceived quality of healthcare according to our model. First, we consider patient satisfaction antecedents and their first part: global perceptions that incorporate five elements represented in Diagram 6 below.

Here, it is clear that satisfaction and perceived quality of healthcare are strongly correlated with accessibility and availability, ($r=0.65$) vs. ($r=0.63$), and with facilities and physical conditions, ($r=0.63$) vs. ($r=0.60$); they are moderately correlated with privacy, ($r=0.45$) vs. ($r=0.46$). Privacy is strongly correlated with facilities and physical conditions, ($r=0.61$), while the factor facilities and physical conditions is strongly correlated with accessibility and availability, ($r=0.62$). To continue, satisfaction and perceived quality of healthcare are weakly correlated with busyness of the ED in terms of the number of people, ($r= -0.27$) vs. ($r= -0.21$), and very weakly correlated with any help in terms of orientation within the ED, ($r= -0.13$) vs. ($r= -0.07$).

Diagram 6. Patient satisfaction antecedents - global perceptions.



Accessibility and availability of the ED predict ED use, particularly for non-urgent cases. Families that lack or have low financial capability tend to visit the ED regardless of access or availability even in non-urgent cases in health systems where no initial payment is required to obtain emergency services (Hudson et al., 2014). In a study by Durand, Palazzolo, Tanti-Hardouin, Gerbeaux, Sambuc, and

Gentile (2016), patients chose EDs based on convenience (in terms of location, time, and access) and the availability of technical facilities in the ED.

The physical environment matters in forming patient perception and satisfaction (Kenney and Martin, 2016). EDs without adequate resources and low-quality inputs affected ED workers' productivity and increased their job-related stress, which may affect the quality of care they can deliver (Mosaddeghrad, 2014). In addition, the availability of well-functioning and adequate medical equipment, as well as infrastructure to support medical processes, may influence the quality of care delivered.

Privacy becomes especially relevant in EDs, as patients can overhear conversations and private, confidential information that may cause a violation of their privacy (Mozota Duarte et al., 2013). A proper physical environment in the ED may guarantee privacy. In a study by Hartigan et al. (2018), renovating the ED contributed to the improvement of patients' perceptions of privacy. Respecting privacy was found to be correlated with satisfaction as an important indicator of quality of care (Nayeri & Aghajani, 2010).

ED crowding describes the inflow of many patients into the ED, which impacts patient flows and ED throughput and increases the length of time that patients have to wait to receive treatment or be discharged. The ED may become too busy due to increased hospital occupancy, inappropriate patient referral, staff shortages or limitations, inefficient triage, insurance practices, ambulatory design, and seasonal patient flow variation, among other factors (Jayaprash O'Sullivan, Bey, Ahmed & Lotfipor, 2009). Multiple studies have investigated the causes and consequences of overcrowding in EDs. According to Bernstein et al. (2009), ED overcrowding is associated with an increased risk of mortality; longer waiting times for patients with time-sensitive critical conditions, such as pneumonia; and a higher risk of leaving the hospital without being seen. In a study by Sun et al. (2013), the odds of death for patients admitted during high ED crowding days were 5% greater than days when there was no crowding. In addition, the hospital length of stay was 6.8% longer, and the cost of admission was 1% higher (Sun et al., 2013). According to the findings of Pines, Iyer, Disbot, Hollander, Shofer, and Datner (2008), ED crowding impacts patient satisfaction. The study reviewed 1,501 hospitalisations and found that crowding factors, such as hallway use, were predictive of overall ED satisfaction, overall satisfaction with hospitalisation, and a lower likelihood of recommending the ED ($p \leq 0.05$; Pines et al., 2008). In addition, long ED boarding and treatment times predicted lower ED satisfaction and overall hospitalisation ($p \leq 0.05$; Pines et al., 2008).

Next, we consider patient satisfaction antecedents and their second aspect, perceived quality dimensions, which consist of nine elements represented in Diagram 7 below. Each element incorporates a certain number of variables with correlation coefficients for satisfaction and perceived quality of healthcare.

We have already discussed waiting time and ED personnel, and here, we can mention additional variables; for example, length of hospitalisation, ($r = -0.14$) vs. ($r = -0.13$), turned out to be very weakly correlated with satisfaction and perceived quality of healthcare. It was also very weakly or weakly correlated with other variables under investigation. In terms of the discharge process, for example,

explanation in case of no discharge note, ($r=0.16$) vs. ($r=0.17$), has a very weak correlation with satisfaction and perceived quality of healthcare. At the same time, however, it has a strong correlation with length of hospitalisation, ($r=0.84$).

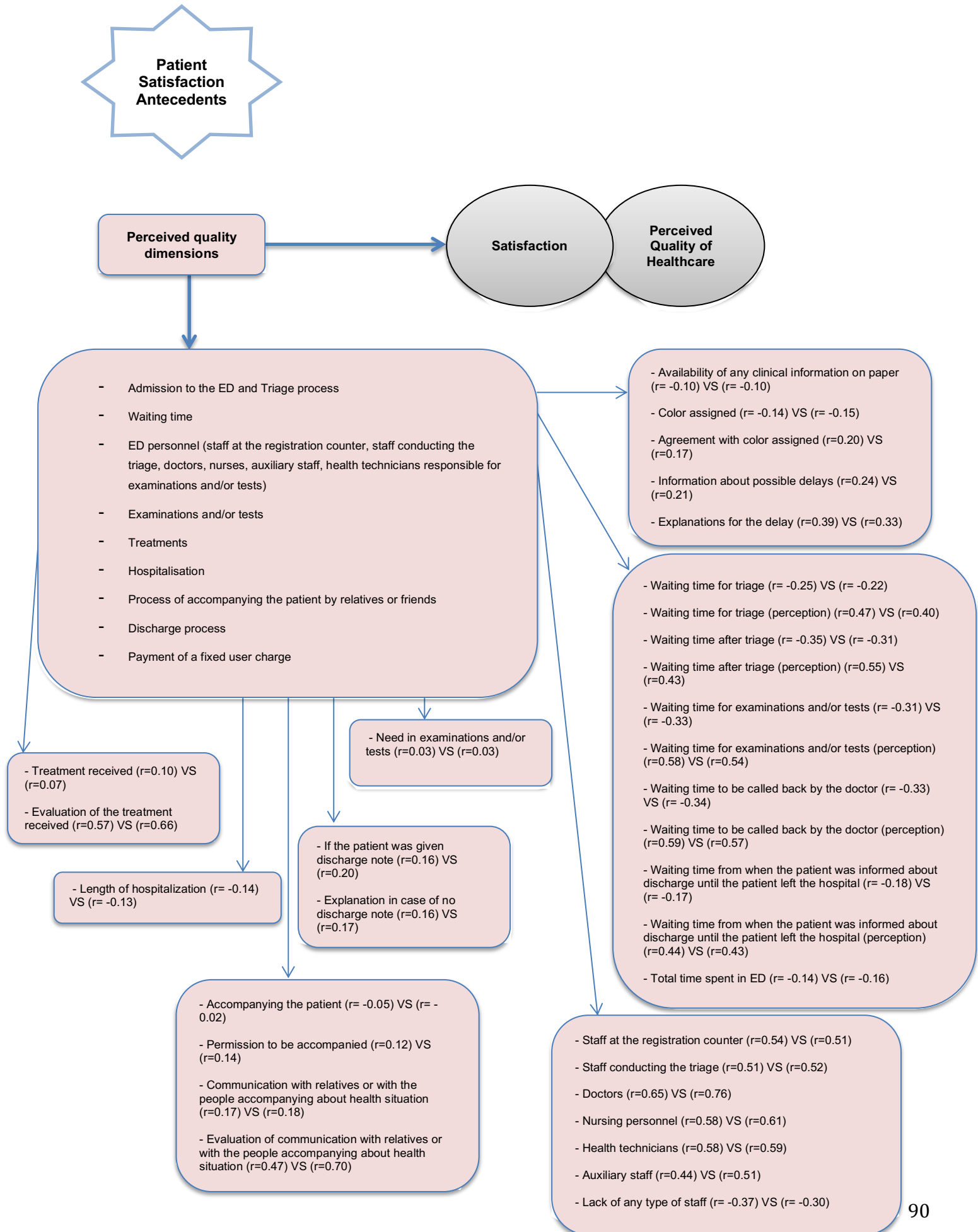
Patients visiting the ED may be discharged or admitted; they may be admitted for further treatment, observation, or to receive more care. In a study by Becker and colleagues (2015), hospitalised patients accounted for 5.5% of all patient consultations during triage. In the study, the rate of hospitalisation was significantly correlated with the age of the patient; acuity, as determined by the triage category assigned; and whether the patient was assigned to clinical or surgical specialty. Patients referred to clinical specialty were more likely to be hospitalised and had longer hospitalisation periods compared to surgical patients ($p=0.0004$; Becker et al., 2015). The high-priority group has been found to be associated with higher mortality rates, higher hospitalisation rates, and longer hospitalisation periods (Becker et al., 2015).

Regarding the discharge process, we must mention discharge summaries that facilitate continuing patient care between physicians, hospitals, and patients (Gilliam et al., 2017). Effective, timely, and accurate discharge summaries are associated with increased patient satisfaction and a reduced number of adverse drug effects, post-discharge mortality, and complications and unplanned readmissions (Newnham, Barker, Ritchie, Hitchcock, Gibbs & Holton, 2017). A study by Gilliam and colleagues (2017) has reported that a discharge summary tool leads to timely and comprehensive discharge information, which results in high-quality care. Discharge summaries enhance the quality of care through effective communication.

The evaluation of the treatment received is strongly correlated with doctors ($r=0.65$) and health technicians ($r=0.61$). The colour assigned turned out to be weakly correlated with agreement with the colour assigned ($r= -0.31$). Further, we can say that the evaluation of communication with relatives or with the people accompanying the patient about the health situation is strongly correlated with the evaluation of the treatment received ($r=0.67$), doctors ($r=0.76$), nursing personnel ($r=0.65$), health technicians ($r=0.66$), and accessibility and availability ($r=0.60$).

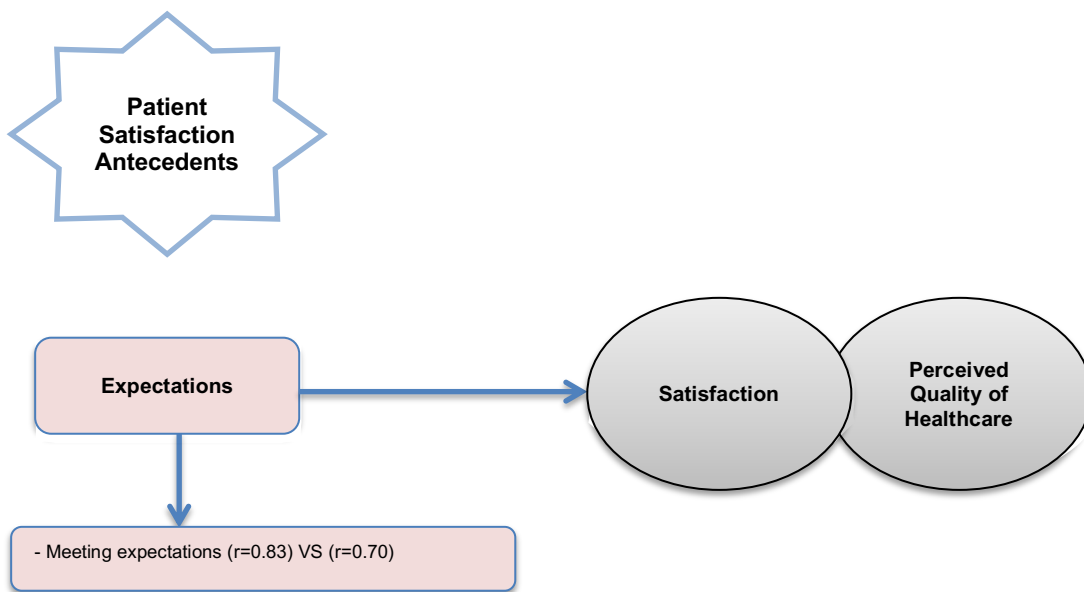
We must also mention patient satisfaction antecedents and their third part, the expectations that incorporate one main element represented in Diagram 8. Unmet expectations can result in patients' non-compliance and may impact providers' reputation in a community (Lateef, 2011). In addition, 70% of litigations involving medical practitioners are related to real or perceived problems in communication, which influence patients' expectations (Lateef, 2011). Berhane and Enquselassie (2016) have reported that there was a significant difference in expectations prior to consultation and after consultation.

Diagram 7. Patient satisfaction antecedents - perceived quality dimensions.



Here, we note that expectations in our case are strongly correlated with both satisfaction and perceived quality of healthcare, and at the same time strongly correlated with accessibility and availability, ($r=0.60$); facilities and physical conditions, ($r=0.60$); and nursing personnel, ($r=0.60$). Further, meeting expectations has moderate correlations with other variables, such as privacy, ($r=0.41$); waiting time after triage, (qualitative perception; $r=0.52$); waiting time for examinations and/or tests (qualitative perception; $r=0.57$); waiting time to be called back by the doctor (qualitative perception; $r=0.58$); staff at the registration counter, ($r=0.45$); staff conducting the triage, ($r=0.46$); doctors, ($r=0.58$); health technicians, ($r=0.54$); the evaluation of the treatment received, ($r=0.52$); and the evaluation of communication with relatives or with the people accompanying the patient about the health situation, ($r=0.47$).

Diagram 8. Patient satisfaction antecedents - expectations.



6.1.2 Correlations according to the proposed model - consequences

Another part of our model is patient satisfaction consequences, which consist of the three elements represented in Diagram 9. Each element incorporates a certain number of variables with correlation coefficients for satisfaction and perceived quality of healthcare. As we can see in terms of payment perception with two dimensions, agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, ($r=0.16$) vs. ($r=0.20$), has very weak correlation with satisfaction and slightly stronger correlation with perceived quality of healthcare. This differs from current payment of fixed user charge, which may influence the quality of the service and treatment, ($r=0.12$) vs. ($r=0.09$), which has very weak correlation with both satisfaction and perceived quality of healthcare. At the same time, these two dimensions of payment perceptions are weakly correlated with each other ($r=0.25$).

The *payment of a fixed user charge* can be considered in relation to the payment perceptions of a fixed user charge using two criteria: 1) whether the current payment of the fixed user charge may influence the quality of the service and treatment, and 2) regardless of the current charges and

exemptions, whether a fixed user charge should be paid to access the ED in order to help improve the service and treatments received; based on these, we observe interesting results. The test reveals that there are statistically significant differences between the categories only in the case of the second question ($F(1,317)=8.32$, $p\leq 0.01$); these are represented in Table 6.1. Participants who paid a fixed user charge leaned more towards agreement with the payment of a fixed user charge to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions ($M=6.33$, $SD=3.44$) than those who were exempt ($M=5.16$, $SD=3.68$). The results regarding the first question did not show statistically significant differences between the categories.

Table 6.1. Differences related to payment of a fixed user charge in terms of payment perceptions of a fixed user charge.

In terms of payment perceptions	n		Mean		Min	Max	SD	
Paid	168	191	4.14	6.33	1	10	3.19	3.44
Exempt	121	128	4.76	5.16	1	10	3.50	3.68
Total	289	319	4.40	5.86	1	10	3.34	3.58

Note: The table represents the values for the first and the second questions of payment perceptions in terms of: n, Mean and SD. Categories such as *did not pay, because you do not know if you are exempt, did not pay, because were not asked, and did not pay, because did not have any money* were eliminated for having fewer than 17 respondents.

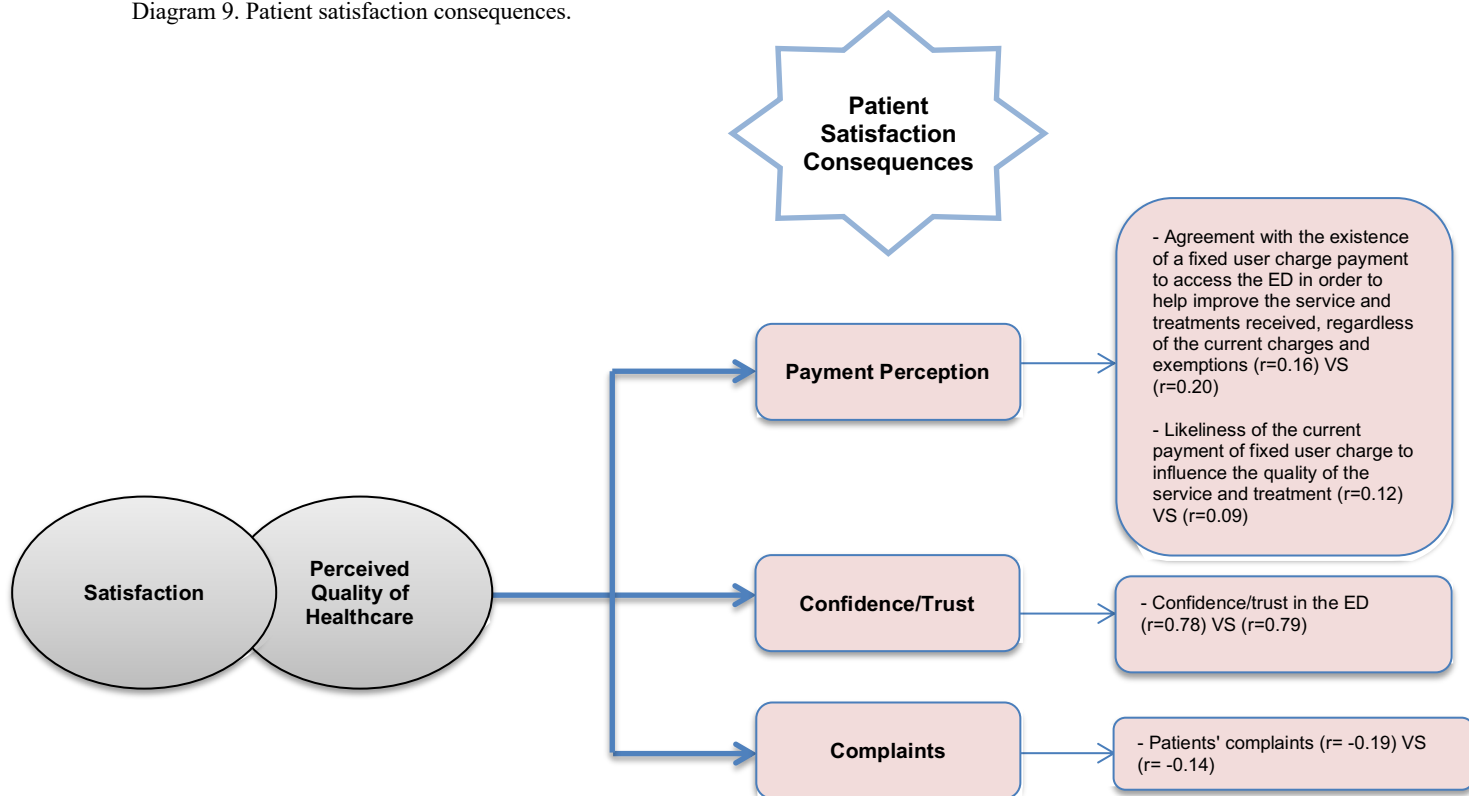
EDs in different countries have varying policies when it comes to paying for emergency services. Where payment is made, the patients may be only partly covered by insurance or may have no insurance at all. In a study by Brown and colleagues (2012), insurance status was a significant predictor for the ‘usual place of healthcare’, or where patients often went to obtain treatment regardless of age, admission status, or gender. The ED was more likely to be the usual place of care for uninsured patients (Brown et al., 2012). Considering the economic pressure that paying hospital bills is likely to have on patients, medical price transparency is an important metric. This involves allowing patients to have a voice in deciding the cost and benefits of treatment and emergency physicians taking into consideration the cost of care (Greene, 2014). Hospitals may also send price estimates to patients or post their prices to the public (Greene, 2014). A systematic review by Hussey, Wertheimer, and Methrotra (2013) found mixed evidence of the association of healthcare cost and quality. Some studies included in the review found a positive association on the patient, provider, physician, and hospital, while others found a negative association, and yet others were imprecise, mixed, or did not report any difference (Hussey et al., 2013). However, Xesfingi, and Vozikis (2016) have reported a negative association between patient satisfaction and private spending on health but a positive association between patient satisfaction and public health expenditure. Patients in countries where healthcare is funded publicly tend to be more satisfied with their healthcare compared to patients in countries where they have to pay for healthcare privately. An increase in private health expenditure decreased satisfaction by 98.7% (Xesfingi & Vozikis, 2016).

Ultimately, complaints had a quite weak correlation with satisfaction and perceived quality of healthcare, ($r= -0.19$) vs. ($r= -0.14$). Stelfox et al. (2005) have shown that decreased physicians’ patient satisfaction survey scores were associated with increased rates of patient complaints ($p\leq 0.0001$). Physicians in the middle tier were 26% more likely to have malpractice lawsuits, while those in the bottom tier had a 110% chance likelihood of a malpractice lawsuit compared to physicians in the top tier of satisfaction survey ratings (Stelfox et al., 2005).

Another element from our model, confidence/trust, was strongly correlated with both satisfaction and perceived quality of healthcare, ($r=0.78$) vs. ($r=0.79$). Patients' confidence/trust is an integral determinant of the patient experience. It partly reflects the patients' perception of the staff's competence and knowledge (Commission for Healthcare Audit and Inspection, 2005). Confidence/trust can encompass not only the procedures and processes for patient treatment, but also the staff. Confidence/trust in the clinical team was associated with higher overall satisfaction (doctors $p=0.002$, nurses $p=0.008$; Jones, O'Neill, McLean, Wigmore & Harrison, 2017).

At the same time, confidence/trust is strongly correlated with accessibility and availability, ($r=0.61$); doctors, ($r=0.67$); and meeting expectations, ($r=0.66$). Among the consequences, confidence/trust is weakly correlated with agreement of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions ($r=0.22$).

Diagram 9. Patient satisfaction consequences.



6.1.3 Correlations according to the proposed model – controlling factors

The last part of our model refers to controlling factors, which consist of four elements represented in Diagram 10, and they are incorporated in the whole model of patient satisfaction. Each element has a certain number of variables with correlation coefficients for satisfaction and perceived quality of healthcare. As we see among all controlling factors, we can emphasise only age, ($r=0.20$) vs. ($r=0.21$), which has weak correlation with satisfaction and perceived quality of healthcare. All other controlling factors have correlation coefficients below 0.20 or below -0.20, which proves their very weak correlation with satisfaction and perceived quality of healthcare.

Some researchers have noted a direct association of age with patients' healthcare perceptions (DeVoe, Wallace, and Fryer, 2009). However, a correlation between age and satisfaction is not stable and varies across healthcare setting conditions and situational contexts (Parrish, Vyas, and Douglass, 2014). In a systematic review by Uscher-Pines, Pines, Kellerman, Gillen, and Mehrotra (2013), age was associated with non-urgent use of the ED, as younger adults were more likely to use the ED for non-urgent cases than older adults. A study by Latham and Stolarz (2014) has shown that the ED length of stay and number of visits requiring consultation and diagnostic examination increased with age group ($p \leq 0.0001$). In addition, 20% of older adults were admitted after their ED visit. According to a study by Henneman, Nathanson, Ribeiro, and Balasubramanian (2014), women of childbearing age, or in the age group 15–44, had longer ED stays (median 2.1 hours) and incurred more clinical costs (\$149/hour) compared to men of the same age (the median stay was 1.7 hours, and costs were \$85/hour). In some studies, females tended to be less satisfied with medical services in terms of nursing care, physician communication, provider care, and overall satisfaction (Woods and Heidari, 2003). Nevertheless, in some cases, gender played no role in shaping patient satisfaction. Adjustment to other patient, physician, and care-related factors is necessary to identify the actual impact of gender on satisfaction levels (Foss, 2000). These studies show that age and gender may lead to different costs of treatment and lengths of stay and, subsequently, waiting times and patient satisfaction. Thus, managing EDs calls for the allocation of resources while considering the age and gender of the patients.

We note that age is moderately correlated with length of hospitalisation, ($r=0.45$), and with the existence of illness or chronic health condition, ($r=0.41$), and it is weakly correlated with evaluation of the state of health, ($r=0.29$). According to some studies, self-reported health status is directly associated with patient satisfaction, and it mediates a cause-effect association between older age and higher satisfaction (Xiao and Barber, 2008). However, sometimes, the health status does not produce a statistically significant impact on patient satisfaction scores (Kaldenberg, 2001).

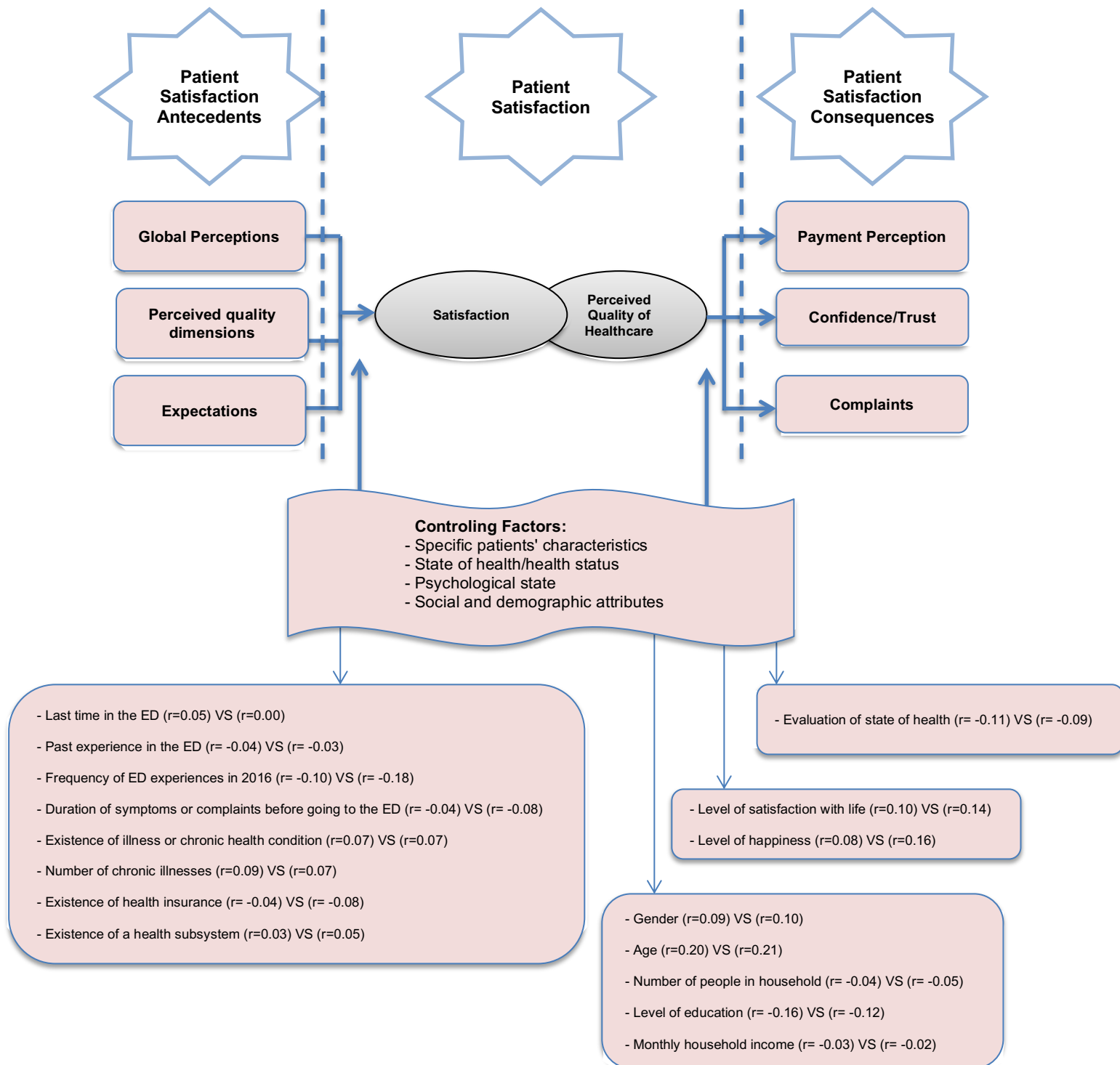
Furthermore, the evaluation of the state of health is moderately correlated with the number of chronic illnesses, ($r=0.46$), and in turn, the existence of illness or chronic health condition is moderately correlated with the length of hospitalisation, ($r=0.40$). The level of education is strongly correlated with age, ($r= -0.67$) and moderately correlated with the length of hospitalisation, ($r= -0.42$).

Education is a social determinant of health, and it can be an element of health or a personal attribute (Hahn & Truman, 2015). Some studies have shown an association between educational level and satisfaction (Murdock and Griffin, 2013; Kelarijani et al., 2014). In the hospital setting, lower levels of education were associated with increased time spent on physical examination and receiving nutritional counselling, as well as reduced time spent on patient questions, negotiation, assessing patient health knowledge, and exercise counselling compared to patients with higher levels of education (Fiscella, Goodwin & Stange, 2002). In addition, screening tests tend to be provided at lower rates among less educated patients compared to more educated patients (Fiscella et al., 2002). In turn, patients with lower education levels had similar satisfaction scores (Fiscella et al., 2002). Thus, the level of education may play a potentially important role in patient satisfaction.

In terms of psychological state, monthly household income is weakly correlated with level of satisfaction with life, ($r=0.28$), and level of happiness, ($r=0.27$). Household income predicts the accessibility and utilisation of healthcare services, particularly for uninsured and partly insured patients or for EDs where patients must pay to obtain treatment. Among patients of lower socioeconomic status, ED visits may impose a significant burden, and this is particularly true for those who are not insured. Multiple ED visits may be necessary when these patients do not have access to less costly and prevention-oriented outpatient care due to limited household income (Hasegawa, Tsugawa, Brown, and Camargo Jr, 2014). With each visit, the burden on these families only grows. In a study by Egede (2004), a household income of less than \$20,000 and more than \$20,000 was a determinant of ED use among individuals with diabetes. According to research by Abolfotouh et al. (2017), male patients who visited the ED were more likely to have a higher income level ($p=0.007$) compared to female patients. Individuals with low incomes were likely to make non-urgent ED visits compared to individuals with high income, although the effect sizes were moderate (Uscher-Pines et al., 2013). However, in a study by Suruda, Burns, Knight, and Dean (2005), only 35% of ED usage was attributed to individuals of low income and under government insurance (Medicaid) for non-emergent and non-urgent conditions. Hasegawa et al. (2014) have shown that markers of socioeconomic status, such as lower household income and Medicare and Medicaid insurance, were positively associated with a higher number of ED visits ($p\leq 0.001$).

In addition, age, ($r= -0.26$ and $r= -0.22$), and level of education, ($r=0.32$ and $r=0.25$), are also weakly correlated with level of satisfaction with life and level of happiness, even though level of happiness is strongly correlated with level of satisfaction with life, ($r=0.75$). These aspects are associated with 'positive' personality traits, which may improve patients' general outlook on life, including healthcare (Santos, Duarte, Ferreira, Pinto, Geene & Silva, 2018). In one study, happiness with life reduced the negative effect associated with the impact of disease on quality of life (Santos et al., 2018). However, according to Abolfotouh et al. (2017), satisfaction with life was not a significant predictor of satisfaction.

Diagram 10. Model of patient satisfaction with controlling factors correlations.



6.2 Determinants of satisfaction and perceived quality of healthcare

In order to perform a preliminary analysis of the determinants of satisfaction and perceived quality of healthcare, we decided to conduct a multiple regression analysis. Regarding inclusion and exclusion criteria, patient satisfaction consequences were not included in the analysis. Further, in the regression analysis, we used only qualitative perceived waiting time. Two additional measures of waiting time were excluded, namely, recorded (actual) waiting time (from the clinical records) and evaluation of

quantitative perceived waiting time; this was done because qualitative perceived waiting time is expected to be the best predictor of satisfaction and perceived quality of healthcare.

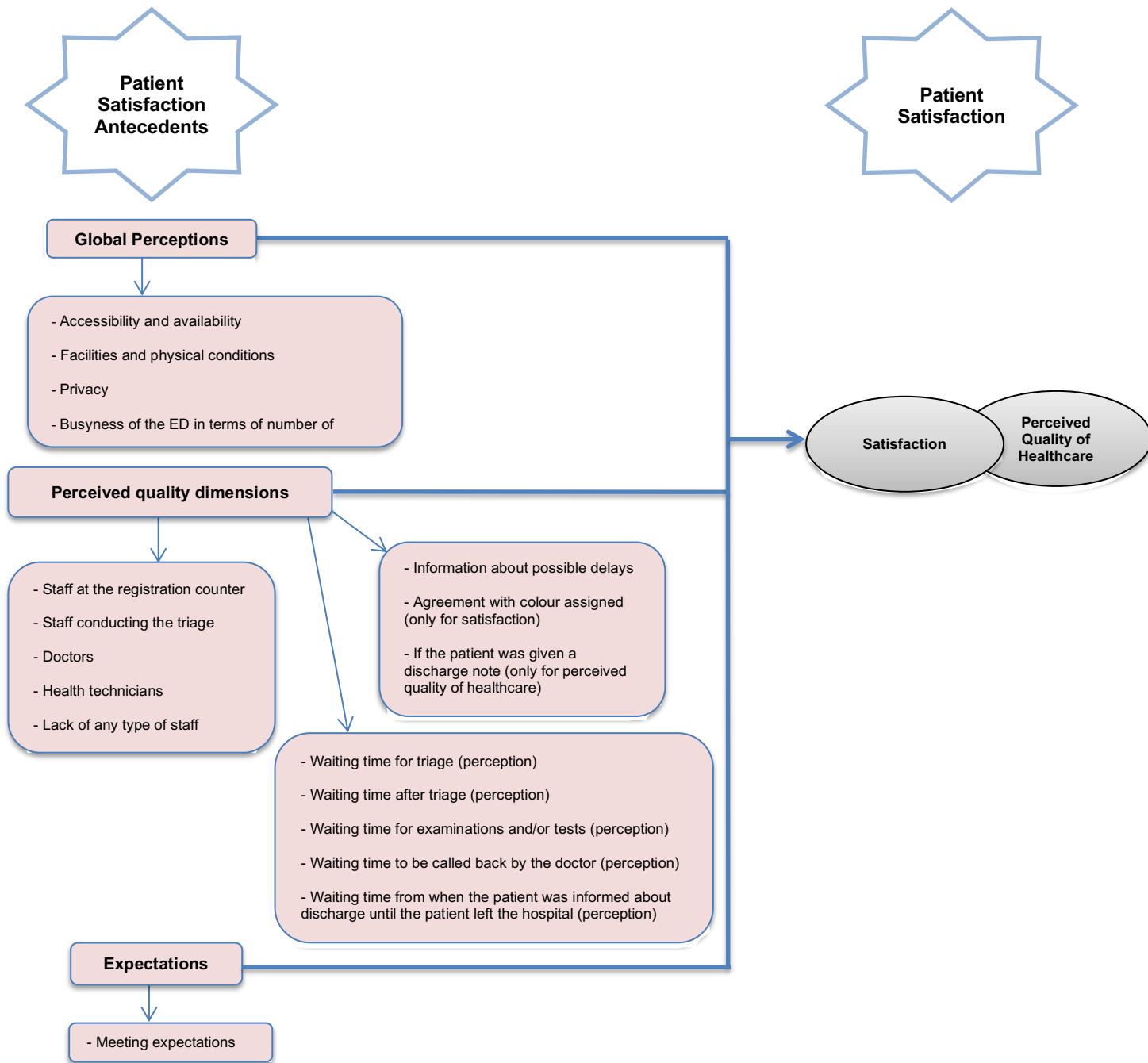
In addition, some potentially relevant variables were excluded from the regression analysis because they have a relatively large number of missing values (at least 30% of the total participants), including nursing personnel, auxiliary staff, evaluation of the treatment received, and evaluation of communication with relatives or with the people accompanying the patient about the health situation.

Eventually, in regression analysis, we used only variables with strong, moderate, or weak correlations with satisfaction and perceived quality of healthcare, namely: accessibility and availability, facilities and physical conditions, privacy, staff at the registration counter, staff conducting the triage, doctors, health technicians, lack of any type of staff, busyness of the ED in terms of the number of people, information about possible delays, agreement with the colour assigned (used only in terms of satisfaction), waiting time for triage (qualitative perception), waiting time after triage (qualitative perception), waiting time for examinations and/or tests (qualitative perception), waiting time to be called back by the doctor (qualitative perception), waiting time from when the patient was informed about discharge until the patient left the hospital (qualitative perception), whether the patient was given a discharge note (used only in terms of perceived quality of healthcare), meeting expectations, and age.

The only variable not mentioned previously was information about possible delays. Providing information about possible delays or waiting time and explanations for the delay enhances patients' satisfaction with the healthcare process in the ED and improves their ability to wait. For example, Calder-Sprackman, Rucker, and Kwok (2018) designed a low-fidelity display to notify and inform patients in the ED waiting room of the wait process and waiting time. The researchers observed that patient satisfaction with and understanding of the ED process improved. Shah et al. (2018) have shown that providing an explanation for delays and waiting times increased patient satisfaction significantly ($p \leq 0.01$). Communicating the delay increased the positive rating of waiting time in triage, informed delays, and the overall rating of the ED visit by 14.6%, 24%, and 17.5%, respectively (Shah et al., 2018). According to Matthews, Ryan, and Bullman (2015), patients were dissatisfied if the cause of delay was factors related to the physician, such as absence due to illness, turnover, and hospital system-related factors, such as supply shortage. The causes of a delay in the results that did not lead to dissatisfaction included patient factors and system-related factors, such as nosocomial infections, equipment maintenance, and infrastructure (Mathews et al., 2015). In a study by Taylor, Kennedy, Virtue, and McDonald (2006), communicating and educating patients improved patient satisfaction significantly ($p = 0.03$). In the study, patients were informed about the ED tests, delays and procedures, and discharge procedures, and the nurses communicated with patients' families (Taylor et al., 2006). Thus, informing patients about how the ED works and why they must wait can be used to enhance patient satisfaction.

We can see that the major part of variables in the regression analysis was the same for satisfaction and perceived quality of healthcare; only two variables showed a slight difference in their correlation with satisfaction and perceived quality of healthcare, as we demonstrated above. Therefore, we decided to conduct a separate regression analysis for satisfaction and for perceived quality of healthcare.

Diagram 11. Variables used in the multiple regression analysis with satisfaction and perceived quality of healthcare.



Consequently, we used 18 predictors covering three different themes and including either satisfaction or perceived quality of healthcare as the dependent variables, which are presented above. Additionally, we used the forced entry method (all predictors entering simultaneously into the regression model) as there were no specific predictions about the relative contributions of each variable (or block of variables).

6.2.1 Regression analysis for satisfaction

The regression model with satisfaction showed statistically significant results, $F(18,234)=45.49$, adjusted R square=0.76, $p\leq 0.01$.

Table 6.2. Multiple regression analysis results for satisfaction.

	Stand. Beta	t	Sig.
Constant		-1.30	0.20
Global perceptions			
Accessibility and availability	0.07	1.53	0.13
Facilities and physical conditions	0.04	0.69	0.49
Privacy	0.04	0.88	0.38
Busyness of the ED in terms of number of people	0.00	-0.03	0.98
Perceived quality dimensions			
ED personnel:			
Staff at the registration counter	0.08	1.60	0.11
Staff conducting the triage	-0.04	-0.95	0.34
Doctors	0.14	3.09	0.00
Health technicians	0.00	-0.08	0.94
Lack of any type of staff	-0.02	-0.50	0.62
Admission to the ED/Triage process:			
Information about possible delays	0.06	1.82	0.07
Agreement with colour assigned	0.01	0.39	0.70
Waiting time:			
Waiting time for triage (perception)	0.08	2.08	0.04
Waiting time after triage (perception)	0.07	1.55	0.12
Waiting time for examinations and/or tests (perception)	0.02	0.46	0.65
Waiting time to be called back by the doctor (perception)	0.00	-0.04	0.97
Waiting time from when the patient was informed about discharge until the patient left the hospital (perception)	0.03	0.88	0.38
Expectations			
Meeting expectations	0.53	11.44	0.00
Social and demographic attribute:			
Age	0.04	1.18	0.24

A more detailed analysis shows that three of 18 predictors have a statistically significant relation with satisfaction: *doctors* with a positive correlation ($r=0.14$, $p\leq 0.01$), *qualitative perceived waiting time for triage* with a positive correlation ($r=0.08$, $p\leq 0.05$), and *meeting expectations* with a positive correlation ($r=0.53$, $p\leq 0.01$).

6.2.2 Regression analysis for perceived quality of healthcare

The regression model with perceived quality of healthcare showed statistically significant results, $F(18,248)=33.97$, adjusted R square=0.69, $p\leq 0.01$.

Table 6.3. Multiple regression analysis results for perceived quality of healthcare.

	Stand. Beta	t	Sig.
Constant		0.36	0.72
Global perceptions			
Accessibility and availability	0.09	1.68	0.09
Facilities and physical conditions	0.06	1.01	0.31
Privacy	0.09	1.89	0.06
Busyness of the ED in terms of number of people	-0.01	-0.35	0.73

Perceived quality dimensions			
ED personnel:			
Staff at the registration counter	-0.06	-1.16	0.25
Staff conducting the triage	0.07	1.39	0.17
Doctors	0.43	8.35	0.00
Health technicians	0.00	0.02	0.98
Lack of any type of staff	0.01	0.22	0.83
Admission to the ED/Triage process:			
Information about possible delays	0.03	0.77	0.44
Waiting time:			
Waiting time for triage (perception)	0.00	0.09	0.93
Waiting time after triage (perception)	-0.06	-1.18	0.24
Waiting time for examinations and/or tests (perception)	0.03	0.58	0.57
Waiting time to be called back by the doctor (perception)	0.10	1.79	0.07
Waiting time from when the patient was informed about discharge until the patient left the hospital (perception)	-0.01	-0.21	0.83
Discharge process:			
If the patient was given discharge note	-0.02	-0.65	0.52
Expectations			
Meeting expectations	0.26	5.07	0.00
Social and demographic attribute:			
Age	0.06	1.69	0.09

A more detailed analysis shows that two of 18 predictors have a statistically significant relation with perceived quality of healthcare: *doctors* with a positive correlation ($r=0.43$, $p\leq 0.01$) and *meeting expectations* with a positive correlation ($r=0.26$, $p\leq 0.01$).

6.3 Conclusion

As we can see, some variables discussed above may differ in terms of satisfaction and perceived quality of healthcare.

Among the variables with different degrees of correlation (moderate vs. strong) in terms of satisfaction and perceived quality of healthcare are the following: nursing personnel, evaluation of the treatment received, and evaluation of communication with relatives or with the people accompanying the patient about the health situation.

The variables that separate satisfaction and perceived quality of healthcare according to inclusion criteria (weak vs. very weak correlation) are the following: if the patient was given a discharge note; agreement with the colour assigned; agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions; and the identification of patients who complained.

The variables that united satisfaction and perceived quality of healthcare are accessibility and availability, facilities and physical conditions, meeting expectations, confidence/trust in the ED, doctors, staff at the registration counter, staff conducting the triage, auxiliary staff, health technicians, lack of any type of staff, privacy, busyness of the ED in terms of the number of people, information about possible delays, explanations for the delays, age, waiting time for triage (quantitative perceived/qualitative perceived), waiting time after triage (quantitative perceived/qualitative perceived), waiting time for

examinations and/or tests (quantitative perceived/qualitative perceived), waiting time to be called back by the doctor (quantitative perceived/qualitative perceived), and waiting time from when the patient was informed about discharge until the patient left the hospital (qualitative perceived).

In turn, patient satisfaction antecedents are correlated with each other with lower or higher degrees, and they are correlated with the variables that demonstrated the slight differences and similarities between satisfaction and perceived quality of healthcare. Hence, we must summarise the main elements and variables from patient satisfaction antecedents that have strong, moderate, and weak correlation with satisfaction and perceived quality of healthcare.

First, regarding global perceptions, satisfaction and perceived quality of healthcare are strongly correlated with accessibility and availability and with facilities and physical conditions; they were moderately correlated with privacy; and they were weakly correlated with busyness of the ED in terms of the number of people.

Second, with reference to perceived quality dimensions, we must emphasise the most important elements. Regarding admission to the ED and triage process, satisfaction is weakly correlated with agreement with the colour assigned; next, information about possible delays and explanations for the delay are weakly correlated with satisfaction and perceived quality of healthcare. Regarding waiting time, satisfaction and perceived quality of healthcare are weakly/moderately correlated with waiting time for triage (quantitative perceived/qualitative perceived), waiting time after triage (quantitative perceived/qualitative perceived), waiting time for examinations and/or tests (quantitative perceived/qualitative perceived), and waiting time to be called back by the doctor (quantitative perceived/qualitative perceived). Next, the waiting time from when the patient was informed about discharge until the patient left the hospital (qualitative perceived) is moderately correlated with satisfaction and perceived quality of healthcare. Regarding ED personnel, doctors strongly correlated with satisfaction and perceived quality of healthcare. Staff at the registration counter, staff conducting the triage, auxiliary staff, and health technicians are moderately correlated with satisfaction and perceived quality of healthcare. Furthermore, nursing personnel is moderately correlated with satisfaction and strongly correlated with perceived quality of healthcare. A lack of any type of staff is weakly correlated with satisfaction and perceived quality of healthcare. Evaluation of the treatment received is moderately correlated with satisfaction and strongly correlated with perceived quality of healthcare. The evaluation of communication with relatives, friends or those accompanying the patient is moderately correlated with satisfaction and strongly correlated with perceived quality of healthcare. For the discharge process, perceived quality of healthcare is weakly correlated with receiving a discharge note.

Third, for expectations, satisfaction and perceived quality of healthcare are strongly correlated with meeting expectations.

In terms of patient satisfaction consequences, confidence/trust can serve as a main consequence of patient satisfaction and perceived quality of healthcare. Complaints about and agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, ultimately had a quite weak

correlation with perceived quality of healthcare. However, *payment issues* may be perceived in a different way among those who paid a fixed user charge and those who were exempt, as we observed above. Participants who paid a fixed user charge leaned more towards agreement with the payment of such a charge to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions.

In brief, the controlling factors did not meet expectations due to very weak correlation coefficients, mainly with satisfaction and perceived quality of healthcare. The only variable we can emphasise among the controlling factors is age, which was weakly correlated with satisfaction and perceived quality of healthcare.

Consequently, we can determine that *doctors* and *meeting expectations* are the main predictors of satisfaction and perceived quality of healthcare, while *qualitative perceived waiting time for triage* is considered to be another predictor, but only in terms of satisfaction.

7. Stepwise multiple linear regression analysis

7.1 Test of the conceptual model through mediation relation

After we finished multiple regression analysis and determined the main predictors with a statistically significant relation with satisfaction and perceived quality of healthcare, we proceeded to the next stage of the analysis. This step involved testing our conceptual model through various mediation models. These mediation models were computed using stepwise multiple linear regression analysis with different combinations of the selected variables, which is demonstrated in Diagram 12 regarding satisfaction and in Diagram 13 regarding perceived quality of healthcare.

Diagram 12. Variables included in the mediation models with satisfaction.

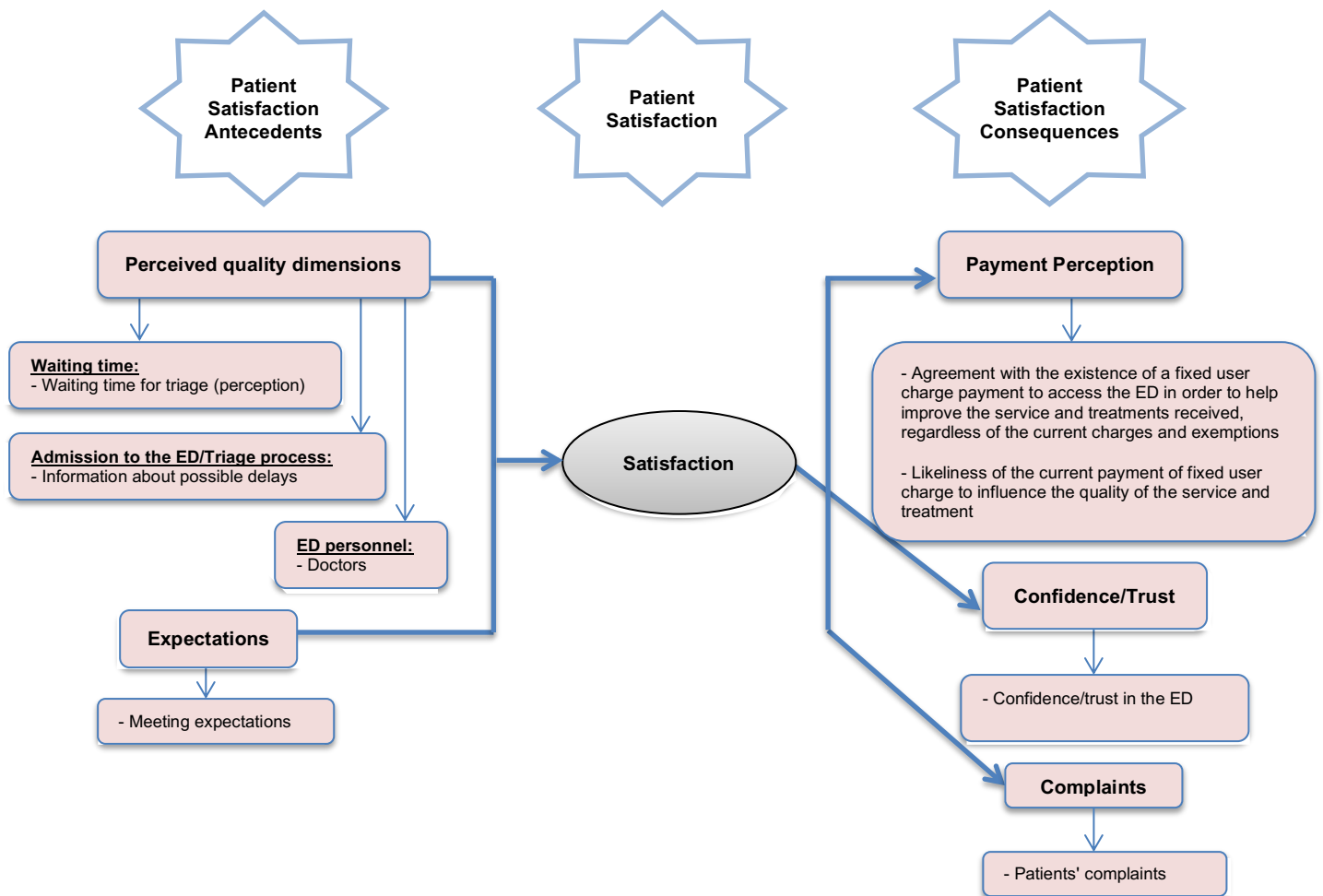
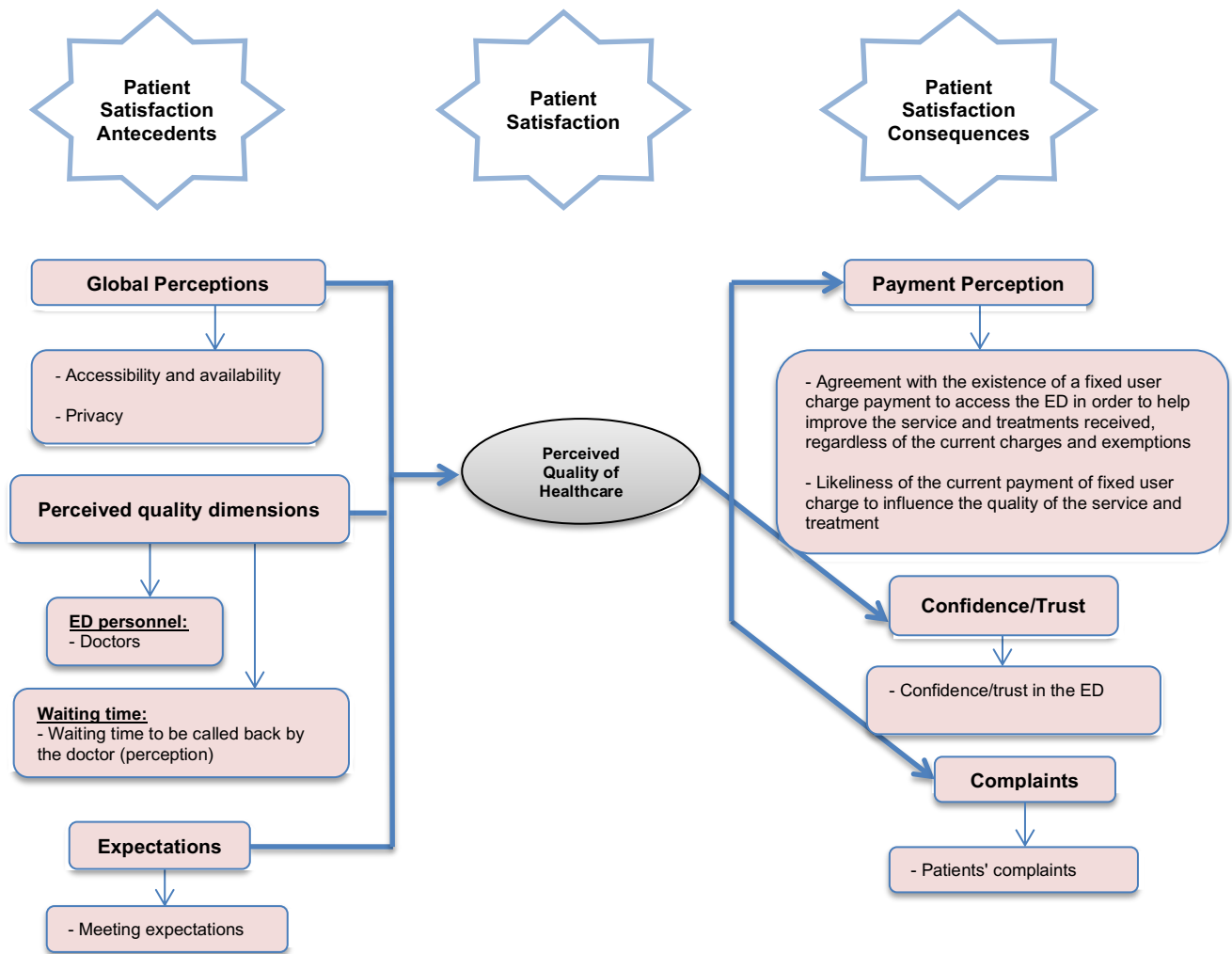


Diagram 13. Variables included in the mediation models with perceived quality of healthcare.



Variables were selected considering that the predictors (antecedents) were significantly correlated with both the mediators (satisfaction/perceived quality of healthcare) and the dependent variables (consequences). For the given analysis, we selected only the main predictors (antecedents) of satisfaction/perceived quality of healthcare that we considered as having statistically significant conditions ($p \leq 0.05$), and some other predictors that had a statistically significant (marginal effects) relationship with satisfaction/perceived quality of healthcare ($p \leq 0.10$), as identified in multiple regression analysis in the previous chapter. The given analysis was performed in two steps: i) the first step included solely the predictor as an independent variable, and ii) the second step added the mediator as an additional independent variable. In this context, satisfaction and perceived quality of healthcare were analysed in a separate way based on the previous results.

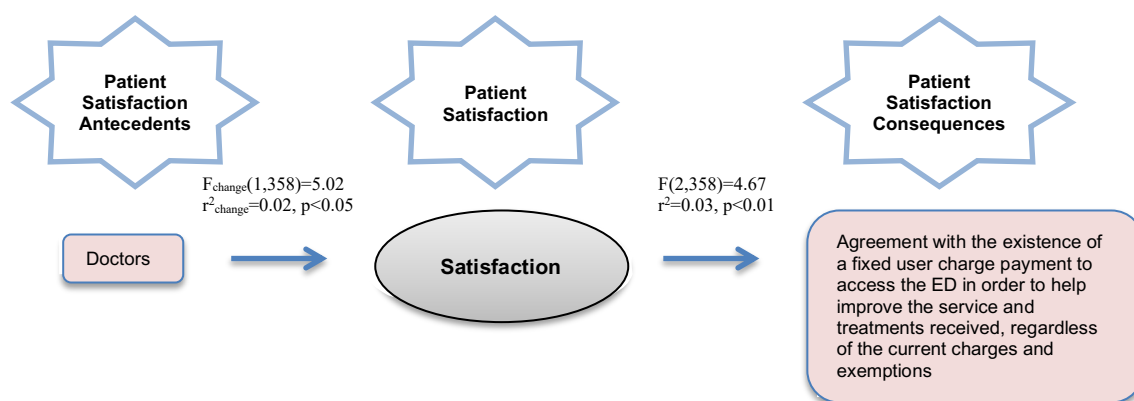
7.1.1 Test of the mediation models regarding satisfaction

The mediation models regarding satisfaction were computed by taking into account all patient satisfaction consequences previously represented above (*agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received,*

regardless of the current charges and exemptions; likeliness of the current payment of fixed user charge to influence the quality of the service and treatment; and confidence/trust in the ED; patients' complaints), the main antecedents of patient satisfaction (doctors, qualitative perceived waiting time for triage, and meeting expectations), and another antecedent that had a statistically significant (marginal effects [$p < 0.10$] were also considered) relation with satisfaction (information about possible delays). This resulted in nine different mediation models. We now consider only those that were statistically significant.

First, we checked the effect on payment perception, including two components of this consequence, only one of which was ultimately statistically significant (agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions), represented in Diagram 14.

Diagram 14. Effect on payment perception.



Here, we can see that the contribution of satisfaction in the given model is 2% of the explained variance; thus, it explains the effect of overall satisfaction with doctors on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, through satisfaction by 2%, making it statistically significant ($p < 0.05$).

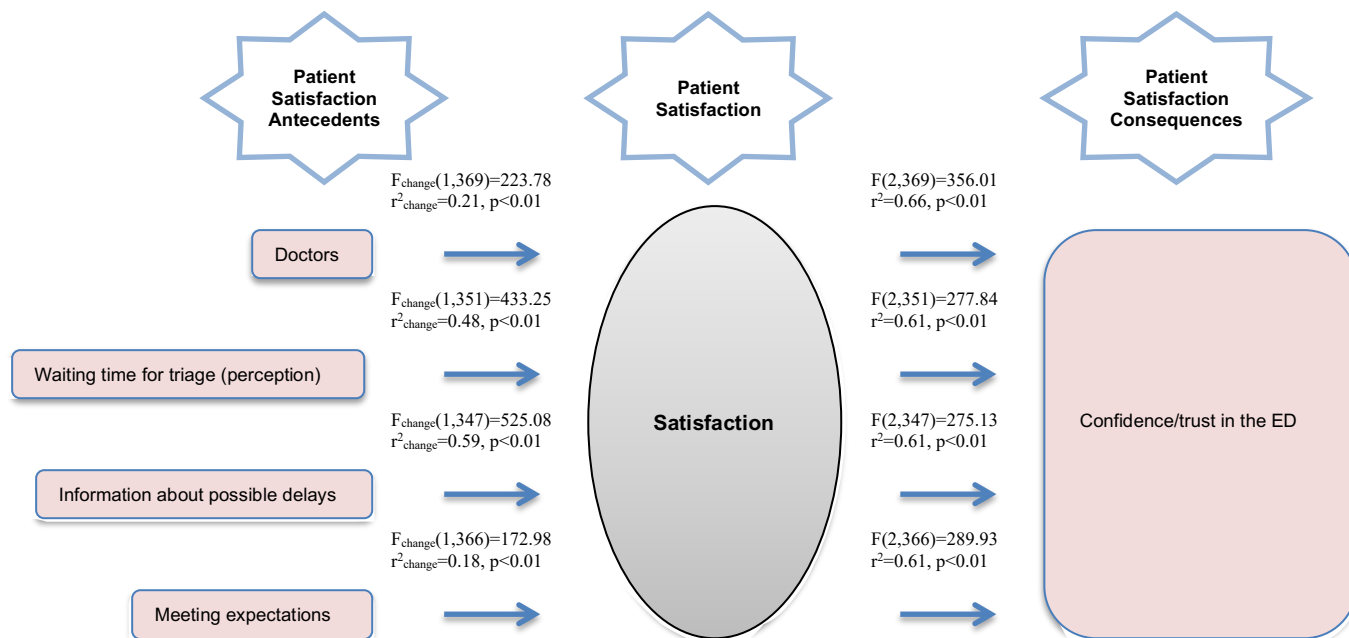
Without satisfaction as a mediator, the effect of overall satisfaction with doctors on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is explained by only 1%. If we look at the correlation level, we can see that the model without satisfaction as a mediator has an $r = 0.11$ correlation level. Adding satisfaction as a mediator in the model reduces the direct correlation level to $r = 0.01$, showing a complete mediation in the model through satisfaction.

Analysing the entire model, we note that 3% of the explained variance is statistically significant ($p < 0.01$). Thus, we can conclude that, through satisfaction, the effect of overall satisfaction with doctors leads to an agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, by 3% of the variation.

Another patient satisfaction antecedent (meeting expectations) was not taken into account in the given descriptive analysis because the model was not statistically significant.

Second, we checked the effect on confidence/trust in the ED, for which all four mediation models were statistically significant; these are represented in Diagram 15.

Diagram 15. Effect on confidence/trust.



The first model, which represents overall satisfaction with doctors, shows that the contribution of satisfaction in the given model is 21% of the explained variance; thus, it explains the effect of overall satisfaction with doctors on confidence/trust in the ED through satisfaction by 21%, which is statistically significant ($p<0.01$).

Without satisfaction as a mediator, the effect of overall satisfaction with doctors on confidence/trust in the ED is explained by 45%. If we examine the correlation level, we can see that the model without satisfaction as a mediator has an $r=0.67$ correlation level. Adding satisfaction as a mediator in the model reduces the direct correlation level to $r=0.28$, showing a partial mediation in the model through satisfaction. In this case, confidence/trust is explained both by a mediation relation and by a direct relation with the predictor.

Analysing the entire model, we note that 66% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through satisfaction, the effect of overall satisfaction with doctors leads to confidence/trust in the ED by 66% of the variation.

The second model that represents perceived waiting time for triage shows that the contribution of satisfaction in the given model is 48% of the explained variance; thus, it explains the effect of perceived waiting time for triage on confidence/trust in the ED through satisfaction by 48% and is thus statistically significant ($p<0.01$).

Without satisfaction as a mediator, the effect of perceived waiting time for triage on confidence/trust in the ED is explained only by 13%. Examining correlation level shows that the model without satisfaction as a mediator has an $r=0.37$ correlation level. Adding satisfaction as a mediator in the model reduces the direct correlation level to $r=-0.00$, thus showing a complete mediation in the model through satisfaction.

In the entire model, 61% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through satisfaction, the effect of perceived waiting time for triage leads to confidence/trust in the ED by 61% of the variation.

The third model, which represents information about possible delays, shows that the contribution of satisfaction is 59% of the explained variance, and it therefore explains the effect of information about possible delays on confidence/trust in the ED through satisfaction by 59%; it is thus statistically significant ($p<0.01$).

Without satisfaction as a mediator, the effect of information about possible delays on confidence/trust in the ED is explained by only 2%. If we consider the correlation level, we note that the model without satisfaction as a mediator has an $r=0.17$ correlation level. Adding satisfaction as a mediator in the model reduces the direct correlation level to $r=-0.02$, thus showing a complete mediation in the model through satisfaction.

In an analysis of the entire model, we note that 61% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through satisfaction, the effect of information about possible delays leads to confidence/trust in the ED by 61% of the variation.

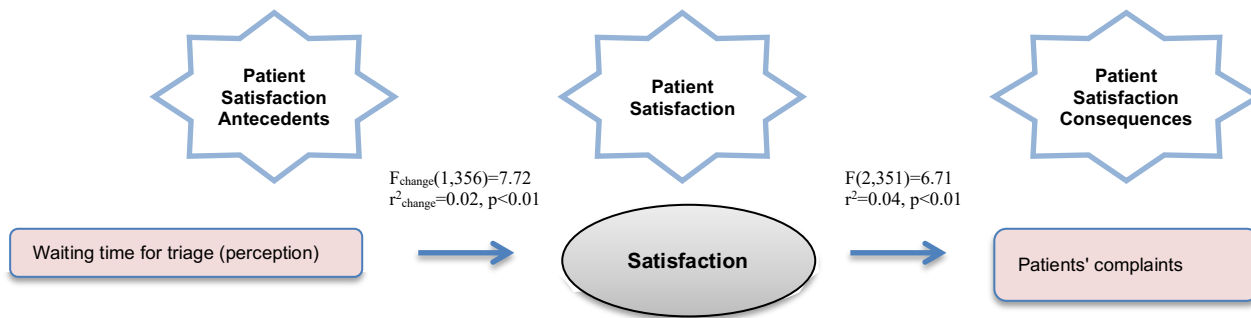
The fourth model, which represents meeting expectations, shows that the contribution of satisfaction is 18% of the explained variance; thus, it explains the effect of meeting expectations on confidence/trust in the ED through satisfaction by 18%, which is statistically significant ($p<0.01$).

Without satisfaction as a mediator, the effect of meeting expectations on confidence/trust in the ED is explained by 43%. If examine the correlation level, we note that the model without satisfaction as a mediator has an $r=0.66$ correlation level. Adding satisfaction as a mediator in the model reduces the direct correlation level to $r=0.02$, which shows a complete mediation in the model through satisfaction.

In the entire model, 61% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through satisfaction, the effect of meeting expectations leads to confidence/trust in the ED by 61% of the variation.

Next, we determined the effect on complaints, where only one mediation model was statistically significant; this is represented in Diagram 16.

Diagram 16. Effect on complaints.



Here, we see that the contribution of satisfaction in the given model is 2% of the explained variance; thus, it explains the effect of perceived waiting time for triage on complaints through satisfaction by 2%, and it is thus statistically significant ($p < 0.01$).

Without satisfaction as a mediator, the effect of perceived waiting time for triage on complaints is also explained by 2%. For the correlation level, the model without satisfaction as a mediator has an $r = -0.12$ correlation level. Adding satisfaction as a mediator in the model reduces the direct correlation level to $r = -0.05$, showing a partial mediation through satisfaction. In this case, complaints are explained both by a mediation relation and by a direct relation with the predictor.

Analysing the entire model, we note that 4% of the explained variance is statistically significant ($p < 0.01$). Thus, we can conclude that, through satisfaction, the effect of perceived waiting time for triage leads to complaints by 4% of the variation.

Another patient satisfaction antecedent (meeting expectations) was not taken into account in this descriptive analysis because the model was not statistically significant.

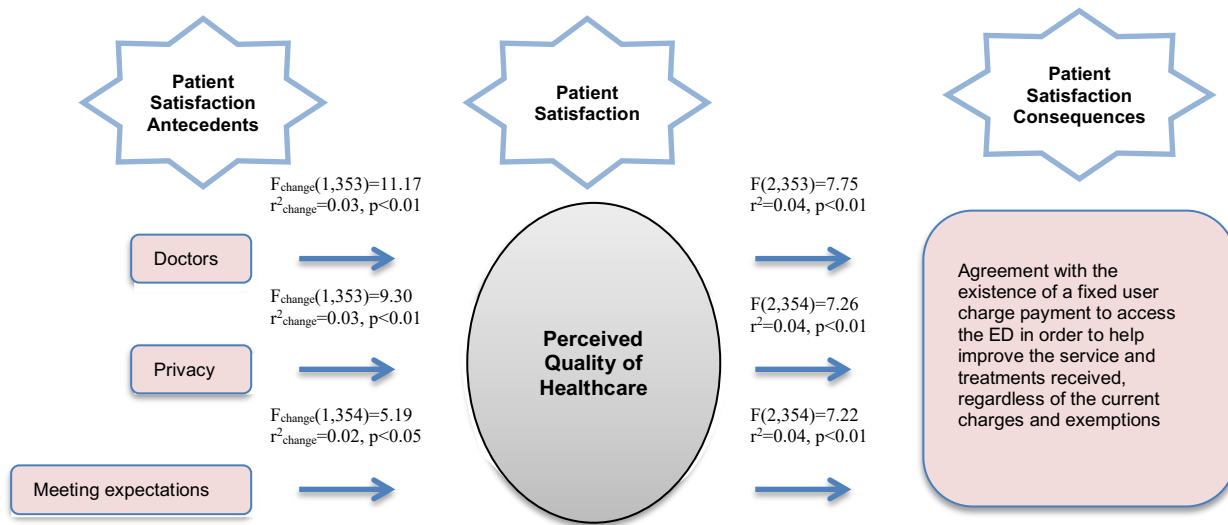
7.1.2 Test of the mediation models regarding perceived quality of healthcare

Following the same rationale, the mediation models regarding perceived quality of healthcare were computed, taking into account all patient satisfaction consequences represented above (*agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions; likeliness of the current payment of fixed user charge to influence the quality of the service and treatment; confidence/trust in the ED; and patients' complaints*), the main antecedents of perceived quality of healthcare (*doctors and meeting expectations*), and other antecedents that had a statistically significant (marginal effects [$p < 0.10$] were also considered) relation with perceived quality of healthcare (*accessibility and availability; privacy, and qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests*). This resulted in 14 different mediation models. We now consider only those that were statistically significant.

First, we checked the effect on payment perception, including two components of this consequence, only one of which was ultimately statistically significant (*agreement with the existence of a*

fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions); this is represented in Diagram 17.

Diagram 17. Effect on payment perception.



The first model, which represents an overall satisfaction with doctors, shows that the contribution of perceived quality of healthcare as a mediator in the given model is 3% of the explained variance, and it thus explains the effect of overall satisfaction with doctors on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, through perceived quality of healthcare by 3%, and it is therefore statistically significant ($p<0.01$).

Without perceived quality of healthcare as a mediator, the effect of overall satisfaction with doctors on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is explained only by 1%. The correlation level shows that the model without perceived quality of healthcare as a mediator has an $r=0.11$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=-0.09$, showing a partial mediation in the model through perceived quality of healthcare. In this case, agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is explained both by a mediation relation and by a direct relation with the predictor.

Analysing the entire model, we note that 4% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of overall satisfaction with doctors leads to an agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, by 4% of the variation.

The second model that represents privacy shows that the contribution of perceived quality of healthcare in the given model is 3% of the explained variance; thus, it explains the effect of privacy on

agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, through perceived quality of healthcare by 3%, which is statistically significant ($p < 0.01$).

Without perceived quality of healthcare as a mediator, the effect of privacy on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is explained by only 1%. If we look at the correlation level, we can see that the model without perceived quality of healthcare as a mediator has an $r = 0.12$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r = 0.04$, showing a partial mediation in the model through perceived quality of healthcare. In this case, agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is explained both by a mediation relation and by a direct relation with the predictor.

For the entire model, 4% of the explained variance is statistically significant ($p < 0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of privacy leads to an agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, by 4% of the variation.

The third model that represents meeting expectations shows that the contribution of perceived quality of healthcare in the given model is 2% of the explained variance, and it explains the effect of meeting expectations on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, through perceived quality of healthcare by 2%, and it is thus statistically significant ($p < 0.05$).

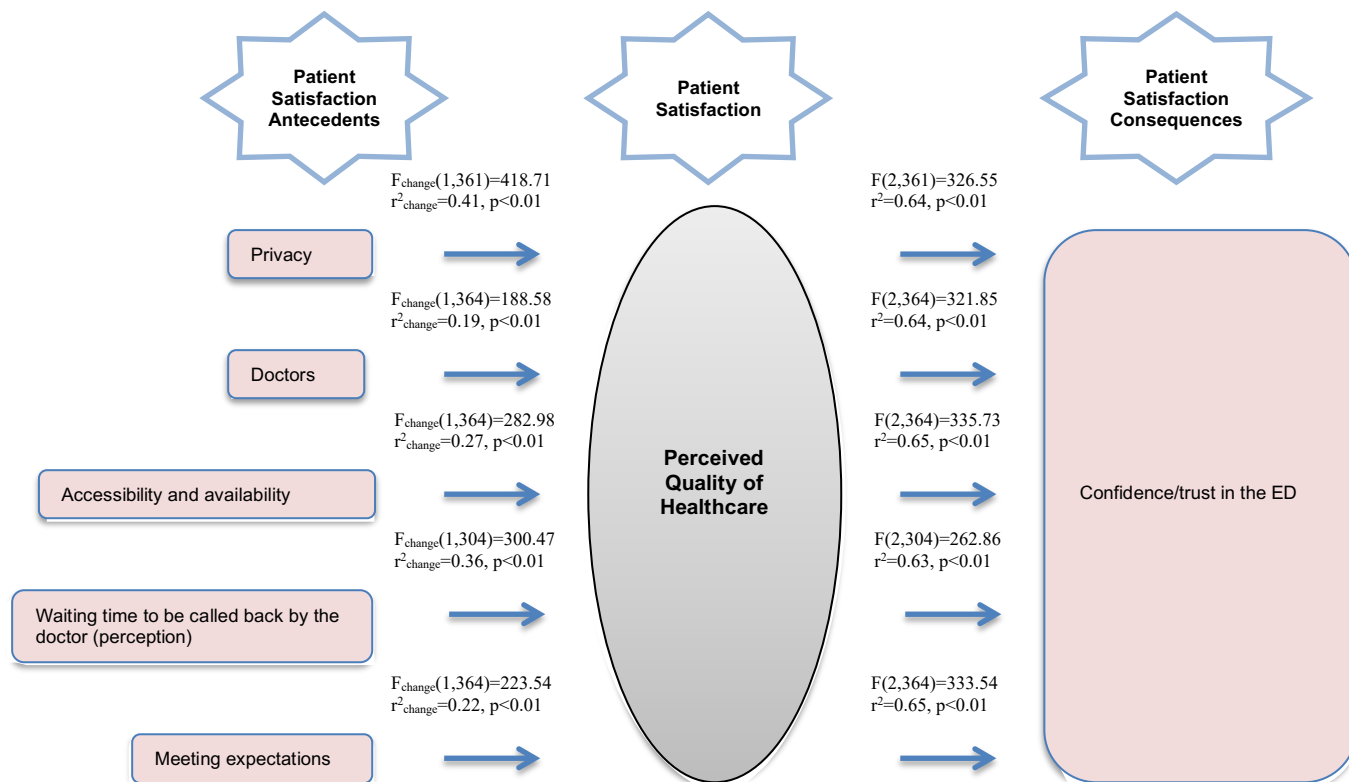
Without perceived quality of healthcare as a mediator, the effect of meeting expectations on agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is also explained by 2%. If we look at the correlation level, we see that the model without perceived quality of healthcare as a mediator has an $r = 0.16$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r = 0.04$, showing a partial mediation in the model through perceived quality of healthcare. In this case, agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, is explained both by a mediation relation and by a direct relation with the predictor.

Examining the entire model shows that 4% of the explained variance is statistically significant ($p < 0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of meeting expectations leads to an agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions, by 4% of the variation.

Another patient satisfaction antecedent (accessibility and availability) was not taken into account in this descriptive analysis because the model was not statistically significant.

Secondly, we checked the effect on confidence/trust in the ED, where all five mediation models were statistically significant and are represented in Diagram 18.

Diagram 18. Effect on confidence/trust.



The first model, which represents privacy, shows that the contribution of perceived quality of healthcare is 41% of the explained variance; thus, it explains the effect of privacy on confidence/trust in the ED through perceived quality of healthcare by 41%, and it is thus statistically significant ($p<0.01$).

Without perceived quality of healthcare as a mediator, the effect of privacy on confidence/trust in the ED is explained by only 23%. The correlation level indicates that the model without perceived quality of healthcare as a mediator has an $r=0.48$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=0.15$, thus showing a partial mediation in the model through perceived quality of healthcare. In this case, confidence/trust in the ED is explained both by a mediation relation and by a direct relation with the predictor.

Across the entire model, 64% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of privacy leads to confidence/trust in the ED by 64% of the variation.

The second model, which represents an overall satisfaction with doctors, shows that the contribution of perceived quality of healthcare in the given model is 19% of the explained variance, and it therefore explains the effect of an overall satisfaction with doctors on confidence/trust in the ED through perceived quality of healthcare by 19%, which is statistically significant ($p<0.01$).

Without perceived quality of healthcare as a mediator, the effect of an overall satisfaction with doctors on confidence/trust in the ED is explained by 45%. If we look at the correlation level, we note that the model without perceived quality of healthcare as a mediator has an $r=0.67$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=0.17$, which indicates that there is a partial mediation in the model through perceived quality of healthcare. In this case, confidence/trust in the ED is explained both by a mediation relation and by a direct relation with the predictor.

Analysing the entire model, 64% of the explained variance is statistically significant ($p<0.01$). Thus, we conclude that, through perceived quality of healthcare, the effect of an overall satisfaction with doctors leads to confidence/trust in the ED by 64% of the variation.

The third model, which represents accessibility and availability, shows that the contribution of perceived quality of healthcare in the given model is 27% of the explained variance; it thus explains the effect of accessibility and availability on confidence/trust in the ED through perceived quality of healthcare by 27%, which is statistically significant ($p<0.01$).

Without perceived quality of healthcare as a mediator, the effect of accessibility and availability on confidence/trust in the ED is explained by 38%. The correlation level shows that the model without perceived quality of healthcare as a mediator has an $r=0.61$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=0.19$, which indicates a partial mediation in the model through perceived quality of healthcare. In this case, confidence/trust in the ED is explained both by a mediation relation and by a direct relation with the predictor.

In the analysis of the entire model, we see that 65% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of accessibility and availability leads to confidence/trust in the ED by 65% of the variation.

The fourth model, which represents perceived waiting time to be called back by the doctor, shows that the contribution of perceived quality of healthcare in the given model is 36% of the explained variance; thus, it explains the effect of perceived waiting time to be called back by the doctor on confidence/trust in the ED through perceived quality of healthcare by 36%, which is statistically significant ($p<0.01$).

Without perceived quality of healthcare as a mediator, the effect of perceived waiting time to be called back by the doctor on confidence/trust in the ED is explained only by 27%. The correlation level shows that the model without perceived quality of healthcare as a mediator has an $r=0.52$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=0.11$, thus showing a partial mediation in the model through perceived quality of healthcare. In this case, confidence/trust in the ED is explained both by a mediation relation and by a direct relation with the predictor.

For the entire model, we see that 63% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of perceived waiting time to be called back by the doctor leads to confidence/trust in the ED by 63% of the variation.

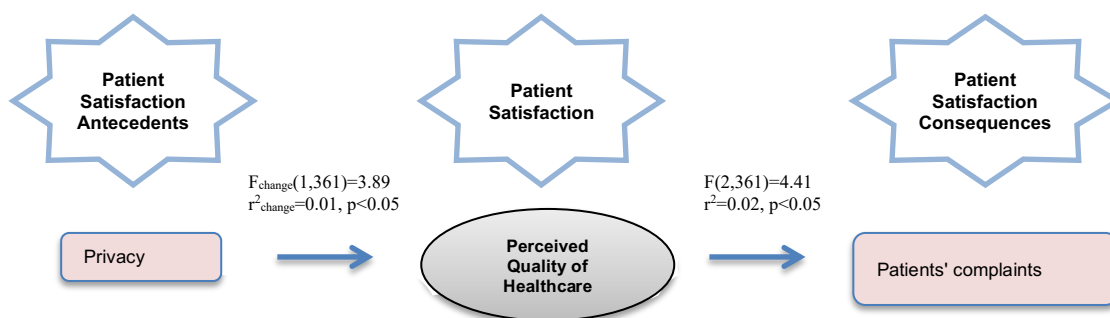
The fifth model, which represents meeting expectations, shows that the contribution of perceived quality of healthcare in the given model is 22% of the explained variance, and it explains the effect of meeting expectations on confidence/trust in the ED through perceived quality of healthcare by 22%, thus making it statistically significant ($p<0.01$).

Without perceived quality of healthcare as a mediator, the effect of meeting expectations on confidence/trust in the ED is explained by 43%. If we consider the correlation level, we see that the model without perceived quality of healthcare as a mediator has an $r=0.67$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=0.20$, showing a partial mediation in the model through perceived quality of healthcare. Here, confidence/trust in the ED is explained both by a mediation relation and by a direct relation with the predictor.

Analysing the entire model, we see that 65% of the explained variance is statistically significant ($p<0.01$). Thus, we can conclude that, through perceived quality of healthcare, the effect of meeting expectations leads to confidence/trust in the ED by 65% of the variation.

We next checked the effect on complaints, for which only one mediation model was statistically significant, which is represented in Diagram 19.

Diagram 19. Effect on complaints.



Here, we see that the contribution of perceived quality of healthcare in the given model is 1% of the explained variance, and it explains the effect of privacy on complaints through perceived quality of healthcare by 1%, which is thus statistically significant ($p<0.05$).

Without perceived quality of healthcare as a mediator, the effect of privacy on complaints is also explained by 1%. The correlation level shows that the model without perceived quality of healthcare as a mediator has an $r=-0.12$ correlation level. Adding perceived quality of healthcare as a mediator in the model reduces the direct correlation level to $r=0.06$, showing a partial mediation in the model through perceived quality of healthcare. In this case, complaints are explained both by a mediation relation and by a direct relation with the predictor.

In the entire model, we note that 2% of the explained variance is statistically significant ($p<0.05$). Thus, we conclude that, through perceived quality of healthcare, the effect of privacy leads to complaints by 2% of the variation.

Other patient satisfaction antecedents (meeting expectations, perceived waiting time to be called back by the doctor, accessibility and availability) were not considered in this descriptive analysis because the models were not statistically significant.

7.1.3 Comparison between the mediation models regarding satisfaction and perceived quality of healthcare

After reviewing the results of the mediation models, we must assess the comparison between them in terms of satisfaction and perceived quality of healthcare; this is represented in Table 7.1. The given comparison helps us understand the differences and the similarities between satisfaction and perceived quality of healthcare as mediators and their contribution in the models represented.

Table 7.1. Mediation models – comparison between satisfaction and perceived quality of healthcare.

Patient Satisfaction Antecedents	Satisfaction		Perceived Quality of Healthcare		Patient Satisfaction Consequences
	r ² change (%)	r ² (%)	r ² change (%)	r ² (%)	
Global perceptions					
Accessibility and availability			27%	65%	Confidence/Trust
Privacy			41%	64%	Confidence/Trust
Privacy			1%	2%	Complaints
Privacy			3%	4%	Payment perception
Perceived quality dimensions					
ED personnel:					
Doctors	2%	3%	3%	4%	Payment perception
Doctors	21%	66%	19%	64%	Confidence/Trust
Admission to the ED/Triage process:					
Information about possible delays	59%	61%			Confidence/Trust
Waiting time:					
Waiting time for triage (perception)	2%	4%			Complaints
Waiting time for triage (perception)	48%	61%			Confidence/Trust
Waiting time to be called back by the doctor (perception)			36%	63%	Confidence/Trust
Expectations					
Meeting expectations	18%	61%	22%	65%	Confidence/Trust
Meeting expectations			2%	4%	Payment perception

Here, we can observe three mediation models that include the same antecedents (doctors and meeting expectations) and the same consequences (confidence/trust and payment perception) with satisfaction and perceived quality of healthcare as mediators. As a payment perception, we consider only one component here due to its statistical significance (agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions). These three models show results that are quite similar in terms of satisfaction and perceived quality of healthcare as mediators, showing only a slight difference in the percentage results, which is demonstrated in Table 7.1.

However, if we look separately at the greatest contribution of satisfaction among all mediation models, we note that it is related to information about possible delays, and it has the greatest contribution in the explanation of the effect of information about possible delays on confidence/trust in the ED by 59% of the explained variance. Various studies have explored the effect of communicating expected waiting times to patients. Shah, Patel, Rumoro, Hohmann, and Fullam (2015) have found that communicating

delays to patients significantly improved patient satisfaction and their overall ED rating; they conclude that communicating waiting times to patients helped manage their expectations. According to Arha (2017), a long waiting time is one of the main patient complaint about EDs, and it leads to an increase in anxiety and stress levels, as the patients' sense of control is decreased. Thus, many hospitals have developed ways to keep patients abreast of expected delays including announcements, websites, billboards, and smartphone applications (Arha, 2017).

Nevertheless, looking at the entire mediation model, the results change, and in this case, we detect an overall satisfaction with doctors, which leads to confidence/trust in the ED through satisfaction by 66% of the variation. According to a study by Kubicek and colleagues (2012), convenience and confidence/trust in ED doctors was one of the primary reasons that patients visited the ED under investigation. The patients interviewed gave reasons for visiting the ED such as, '*Doctors here are better*' and '*I trust doctors here*' (Kubicek et al., 2012). Doctors play a significant role in reassuring patients and enhancing their overall experience through communication. However, doctors in EDs are prone to high levels of work-related stress for multiple reasons, including dealing with patients with different problems, most of which are urgent, and the urgency expressed by patients in EDs who feel they should receive immediate and adequate care (Babitsch, Braun, Borde and David, 2008). A systematic review by Sonis, Aaronson, and Lee (2018) has shown that, to a large extent, doctors and other ED staff members determine the quality of patient experience in the ED.

Concerning the greatest contribution of perceived quality of healthcare among all mediation models, we note that it is related to privacy and has the greatest contribution in the explanation of the effect of privacy on confidence/trust in the ED by 41% of the explained variance. Patients perceive privacy as important during care. In a study by Lin and colleagues (2013), patients' perceptions of privacy included providers' respect for patient's privacy, personal information being overheard by others, and healthcare providers having inappropriate conversations about patients (Lin et al., 2013). In the study, the re-design of the ED to increase privacy resulted in improved ED patient satisfaction and privacy (Lin et al., 2013), which are grounds for building trust/confidence as well as reducing cases of complaints. In a study by Hartigan, Cussen, Meaney, and O'Donoghue (2018), before the re-innovation of the ED to improve privacy, there were significant patient complaints related to lack of privacy and confidentiality there. After making changes to the ED to enhance patient privacy, the perception of overall confidentiality and privacy significantly improved (Hartigan et al., 2018).

For the entire mediation model, we note that both meeting expectations and accessibility and availability lead to confidence/trust in the ED through perceived quality of healthcare by 65% of the variation. Patients may have varied expectations. According to a study by Watt, Wertzler, and Brannan (2005), patients expected the staff to communicate and give them regular updates and explanations of everything, including expected delays and the course of treatment or tests. The researchers noted that patients might have unrealistic expectations that might not be met, and this could negatively affect their perceived quality of care (Watt et al., 2005). In one study, Pun, Mathiessen, Murray, and Salde (2015) have reported that patients had unrealistic expectations of ED care, which created a 'culture of

complaint'. One nurse added, '*Some of the patients who come ... their expectation is very high. Or maybe very demanding*' (Pun et al., 2015). According to Lateef (2011), patient expectations have continued to evolve and increase, and emergency care providers need to understand this to improve patient outcomes and reduce the likelihood of liability. The author suggests using patient-centred care and value-based care approaches to highlight patient needs during their care. As some patients' expectations are realistic and others are not, managing them can be challenging (Lateef, 2011).

Furthermore, considering the percentage distribution of the results, we see perceived waiting time for triage with satisfaction as a mediator and perceived waiting time to be called back by the doctor with perceived quality of healthcare as a mediator in the explanation of confidence/trust in the ED by 48% and 36%, respectively, of the explained variance. Patients and the community in general expect that the ED can provide timely care and will have the capacity to respond appropriately in cases of a public health emergency (McHugh et al., 2012). EDs experience high patient volumes, and when there is overcrowding and long waiting times, or when there are cases of breached patient privacy, trust/confidence in the ED is eroded (McHugh et al., 2012). However, Ward and colleagues (2017) have investigated the impact of long waiting times on patient trust and reported that patients in public hospitals experienced longer waiting times, but this did not influence their trust in the hospital or healthcare professionals. In addition, waiting times can cause patient complaints (Saxon et al., 2013). Long waiting times can impact payments, but estimates of the extent of this are imprecise according to Woodworth and Holmes (n.d). Patients who are triaged at levels one and two and have a one-hour increase in waiting time yields a 30% increase in cost, which is the same estimated increase to the cost the hospital incurs (Woodworth & Holmes, n.d). For patients triaged at levels two and three, a one-hour increase in waiting time yields a 14% increase in cost, while the hospital's costs increase by 21% (Woodworth & Holmes, n.d). Increases in costs can affect patients' ability to pay, especially in healthcare systems where the costs of emergency treatment are cost-shared between the insurer and patients.

Regarding the entire mediation model, there are three patient satisfaction antecedents: perceived waiting time for triage, information about possible delays, and meeting expectations, which lead to confidence/trust in the ED through satisfaction by 61% of the variation. In terms of perceived quality of healthcare as a mediator, there are two: an overall satisfaction with doctors and privacy, that lead to confidence/trust in the ED through perceived quality of healthcare by 64% of the variation. Perceived waiting time to be called back by the doctor leads to confidence/trust in the ED through perceived quality of healthcare by 63% of the variation.

All mediation models with complaints and payment perception as consequences showed quite similar weak results with both satisfaction and perceived quality of healthcare, emphasising the importance of confidence/trust as the main patient satisfaction consequence.

7.2 Test of the conceptual model through moderation relation

In order to verify the effect of controlling factors according to our model, we decided to compute the moderation models using stepwise multiple linear regressions with different combinations of the

selected variables. The analysis was divided into two steps: the first step aimed to check the effect of controlling factors on the relation between patient satisfaction antecedents and satisfaction/perceived quality of healthcare, and the second step aimed to check the effect of controlling factors on the relation between satisfaction/perceived quality of healthcare and patient satisfaction consequences. In the first step, variables were selected considering that both statistically significant predictors (antecedents) and moderators (controlling factors) were significantly correlated with the dependent variable (satisfaction/perceived quality of healthcare). These moderation models in the relationship between patient satisfaction antecedents and satisfaction/perceived quality of healthcare with different combinations of the selected variables are demonstrated in Diagram 20 regarding satisfaction and in Diagram 21 regarding perceived quality of healthcare.

Diagram 20. Variables included in the moderation models with satisfaction.

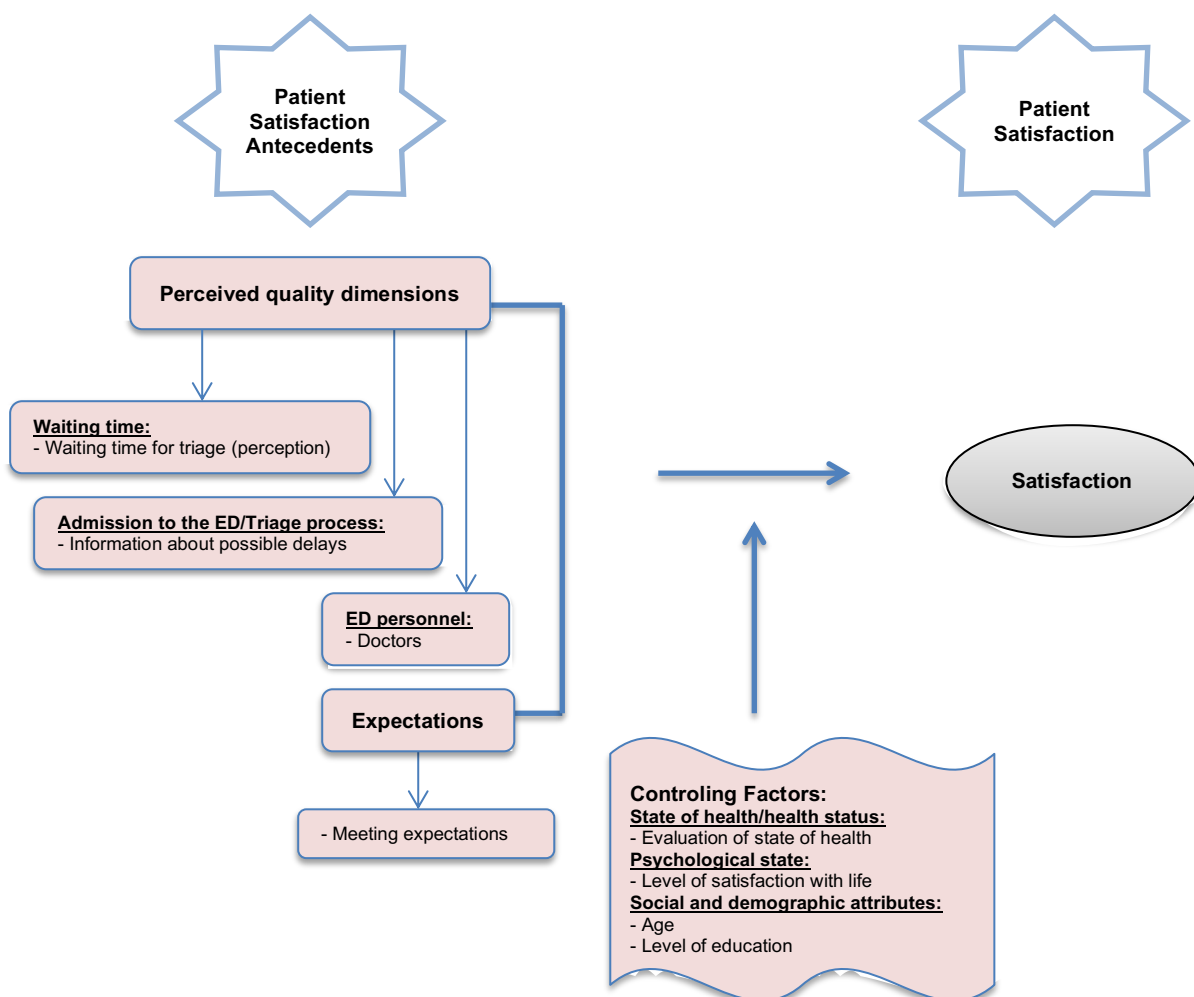
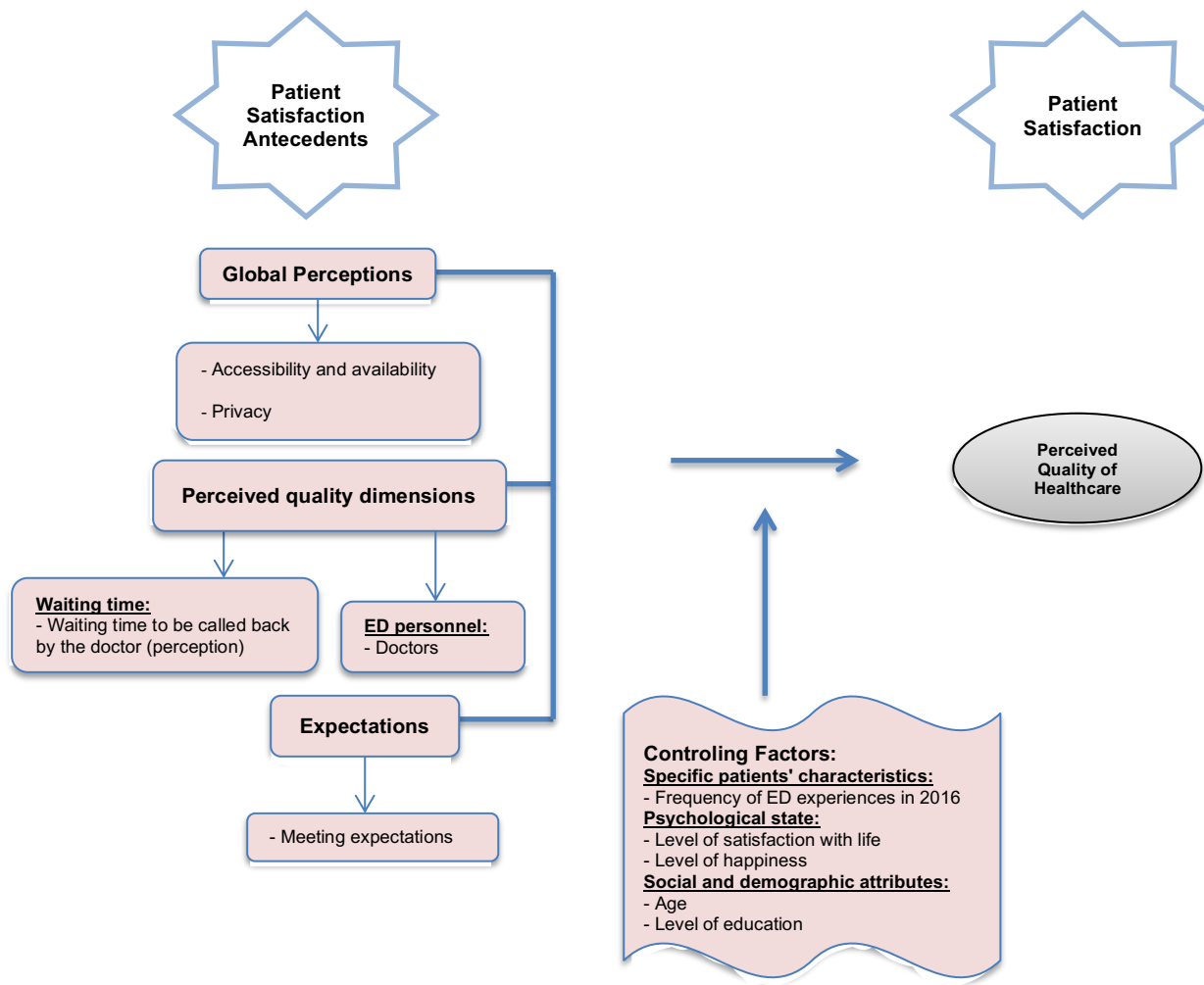


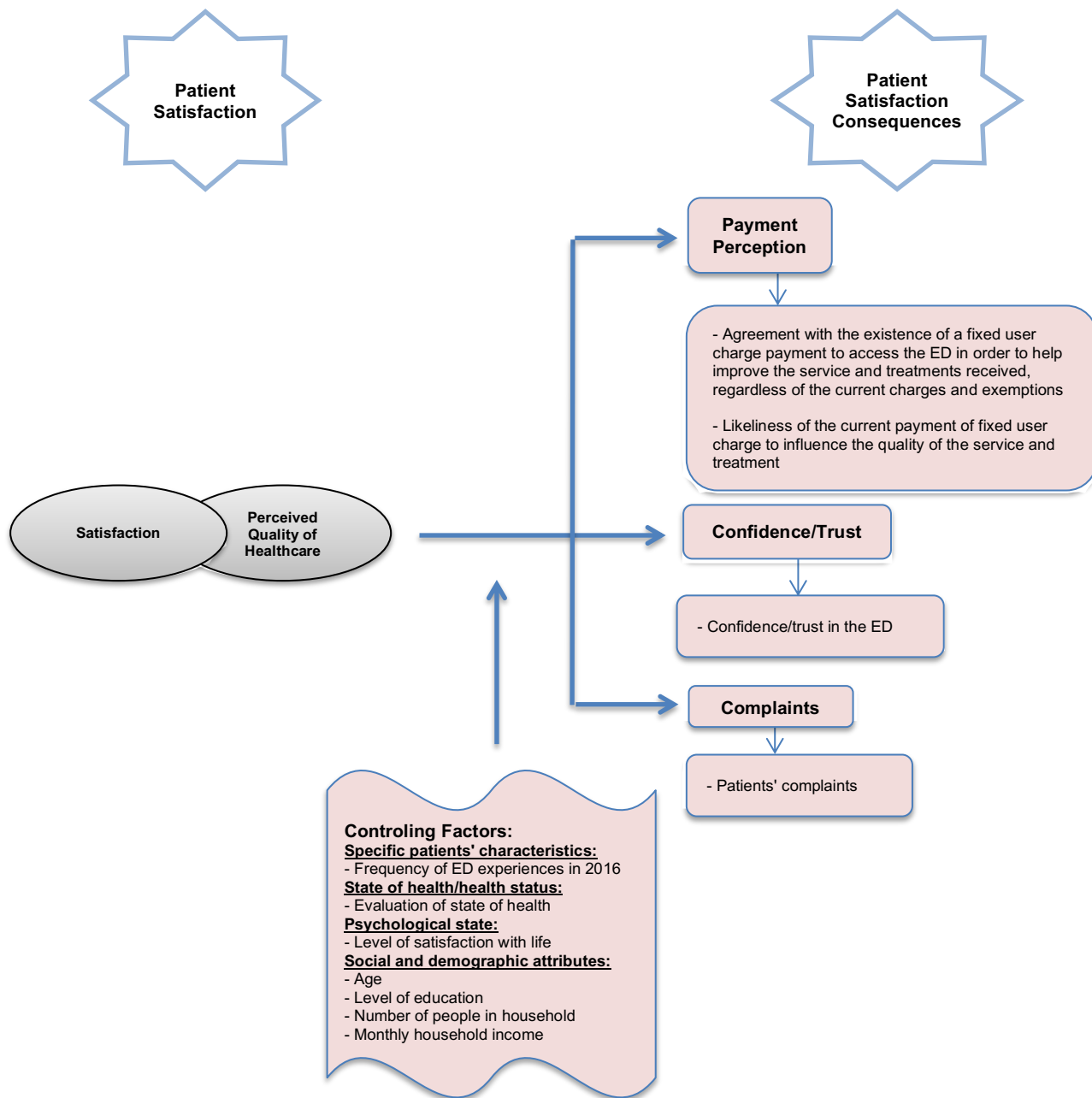
Diagram 21. Variables included in the moderation models with perceived quality of healthcare.



In the second step, following the same rationale, variables were selected considering that both statistically significant predictors (satisfaction/perceived quality of healthcare) and moderators (controlling factors) were significantly correlated with the dependent variable (consequences). These moderation models' relationships between satisfaction/perceived quality of healthcare and consequences with different combination of the selected variables are demonstrated in Diagram 22.

Thus, for each resulting moderation model, the regression analysis was also computed in two steps, but with a different logic from the mediation analysis: i) the first step was with the predictors and the moderators as independent variables, and ii) the second step involved adding the interaction between the predictors and the moderators. In this context, satisfaction and perceived quality of healthcare were analysed separately based on the previous results.

Diagram 22. Variables included in the moderation models with satisfaction/perceived quality of healthcare.



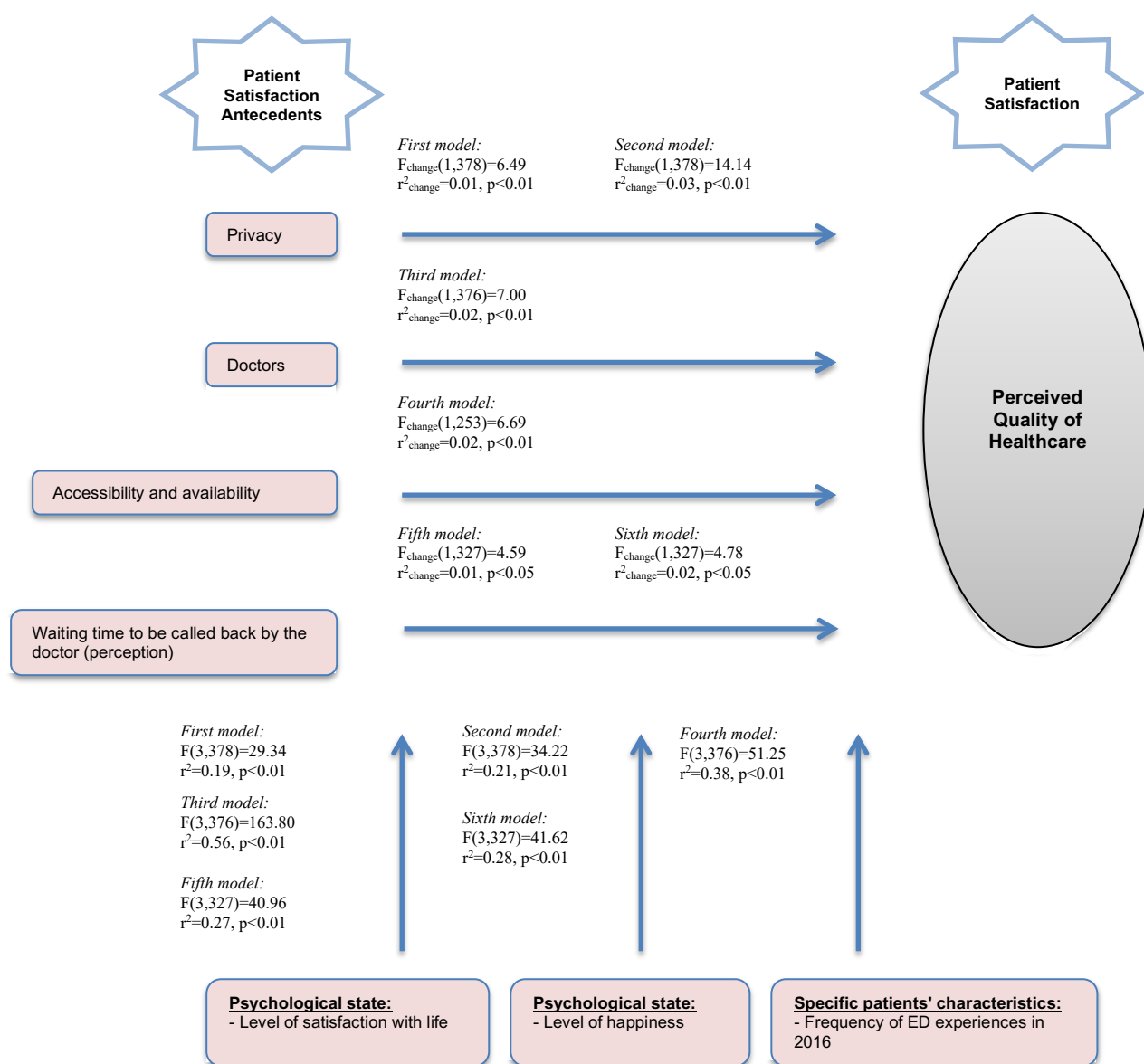
7.2.1 Test of the moderation models in the relationship between antecedents and satisfaction/perceived quality of healthcare

The moderation models regarding satisfaction were computed by taking into account that both the statistically significant predictors (*doctors, qualitative perceived waiting time for triage, meeting expectations, and information about possible delays*) and moderators (*evaluation of state of health, level of satisfaction with life, age, and level of education*) were significantly correlated with the dependent variable (*satisfaction*). This resulted in 16 different moderation models; however, none of them was statistically significant, and thus they are not presented in the descriptive analysis.

The moderation models regarding perceived quality of healthcare were computed taking in consideration of the fact that both statistically significant predictors (*doctors, privacy, meeting*

expectations, accessibility and availability, and qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests) and moderators (*frequency of ED experiences in 2016, level of satisfaction with life, level of happiness, age, and level of education*) were significantly correlated with the dependent variable (*perceived quality of healthcare*). This resulted in 25 different moderation models. We consider only those that were statistically significant, as demonstrated in Diagram 23.

Diagram 23. Moderation models (antecedents/controlling factors) regarding perceived quality of healthcare.



Note: The table represents the values for six different statistically significant moderation models: 1) privacy/level of satisfaction with life; 2) privacy/level of happiness; 3) doctors/level of satisfaction with life; 4) accessibility and availability/frequency of ED experiences in 2016; 5) waiting time to be called back by the doctor (perception)/level of satisfaction with life; and 6) waiting time to be called back by the doctor (perception)/level of happiness.

The first model includes privacy as a predictor and level of satisfaction with life as a moderator. The contribution of the level of satisfaction with life in the given model is 1% of the explained variance; thus, the effect of privacy on perceived quality of healthcare is moderated by the level of satisfaction with life by 1%, and it is thus statistically significant ($p<0.01$).

Without level of satisfaction with life as a moderator, the effect of privacy on perceived quality of healthcare is explained by 18%. We see different correlation levels between privacy and perceived quality

of healthcare ($r_x=0.39$, $p<0.01$), level of satisfaction with life with perceived quality of healthcare ($r_m=0.09$, $p<0.06$); and interaction between privacy and level of satisfaction with life with perceived quality of healthcare ($r_{x*m}=0.12$, $p<0.01$), thus showing a statistically significant moderation effect. Analysing the entire model, which includes this effect of interaction, we note that 19% of the explained variance is statistically significant ($p<0.01$).

The simple slopes analysis shows that the effect of privacy on the perceived quality of healthcare is higher among patients with lower levels of satisfaction with life ($b=0.47$) than among those with higher levels of satisfaction with life ($b=0.22$).

The second model includes privacy as a predictor and level of happiness as a moderator. The contribution of the level of happiness in the given model is 3% of the explained variance; thus, the effect of privacy on perceived quality of healthcare is moderated by the level of happiness by 3%, making it statistically significant ($p<0.01$).

Without level of happiness as a moderator, the effect of privacy on perceived quality of healthcare is explained by 18%. We note different correlation levels between privacy and perceived quality of healthcare ($r_x=0.38$, $p<0.01$), level of happiness with perceived quality of healthcare ($r_m=0.17$, $p<0.01$), and interaction between privacy and level of happiness with perceived quality of healthcare ($r_{x*m}= -0.17$, $p<0.01$), thus showing a statistically significant moderation effect. Analysing the entire model, including this effect of interaction, we note that 21% of the explained variance is statistically significant ($p<0.01$).

An analysis of the simple slopes analysis shows that the effect of privacy on the perceived quality of healthcare is higher among patients with lower levels of happiness ($b=0.49$) than among those with higher levels of happiness ($b=0.17$).

The third model includes overall satisfaction with doctors as a predictor and level of satisfaction with life as a moderator. The contribution of the level of satisfaction with life in the given model is 2% of the explained variance; thus, the effect of an overall satisfaction with doctors on perceived quality of healthcare is moderated by the level of satisfaction with life by 2%, which is statistically significant ($p<0.01$).

Without level of satisfaction with life as a moderator, the effect of an overall satisfaction with doctors on perceived quality of healthcare is explained by 54%. There are different correlation levels between an overall satisfaction with doctors and perceived quality of healthcare ($r_x=0.72$, $p<0.01$), level of satisfaction with life with perceived quality of healthcare ($r_m=0.07$, $p<0.05$), and the interaction between an overall satisfaction with doctors and level of satisfaction with life with perceived quality of healthcare ($r_{x*m}=0.09$, $p<0.01$), showing a statistically significant moderation effect. Analysing the entire model, including this effect of interaction, we see that 56% of the explained variance is statistically significant ($p<0.01$).

The simple slopes analysis shows that the effect of an overall satisfaction with doctors on the perceived quality of healthcare is higher among patients with lower levels of satisfaction with life ($b=0.83$) than among those with higher levels of satisfaction with life ($b=0.64$).

The fourth model includes accessibility and availability as a predictor and the frequency of ED experiences as a moderator. The contribution of the frequency of ED experiences in the given model is 2% of the explained variance; thus, the effect of accessibility and availability on perceived quality of healthcare is moderated by the frequency of ED experiences by 2% and is thus statistically significant ($p<0.01$).

Without frequency of ED experiences as a moderator, the effect of accessibility and availability on perceived quality of healthcare is explained by 36%. We note different correlation levels between accessibility and availability and perceived quality of healthcare ($r_x=0.58$, $p<0.01$), frequency of ED experiences with perceived quality of healthcare ($r_m=-0.12$, $p<0.05$), and the interaction between accessibility and availability and frequency of ED experiences with perceived quality of healthcare ($r_{x*m}=0.13$, $p<0.01$), thus showing a statistically significant moderation effect. Analysing the entire model, which includes this effect of interaction, we see that 38% of the explained variance is statistically significant ($p<0.01$).

In the simple slopes analysis, it is clear that the effect of accessibility and availability on the perceived quality of healthcare is higher among patients with more frequent ED experiences ($b=0.87$) than among those with less frequent ED experiences ($b=0.64$).

The fifth model includes perceived waiting time to be called back by the doctor as a predictor and level of satisfaction with life as a moderator. The contribution of the level of satisfaction with life in the given model is 1% of the explained variance, and thus the effect of perceived waiting time to be called back by the doctor on perceived quality of healthcare is moderated by the level of satisfaction with life by 1%, making it statistically significant ($p<0.05$).

Without level of satisfaction with life as a moderator, the effect of perceived waiting time to be called back by the doctor on perceived quality of healthcare is explained by 26%. There are different correlation levels between perceived waiting time to be called back by the doctor and perceived quality of healthcare ($r_x=0.49$, $p<0.01$), level of satisfaction with life with perceived quality of healthcare ($r_m=0.13$, $p<0.05$), and the interaction between perceived waiting time to be called back by the doctor and level of satisfaction with life with perceived quality of healthcare ($r_{x*m}=-0.10$, $p<0.05$); this shows a statistically significant moderation effect. An analysis of the entire model, including this effect of interaction, shows that 27% of the explained variance is statistically significant ($p<0.01$).

The simple slopes analysis shows that the effect of perceived waiting time to be called back by the doctor on the perceived quality of healthcare is higher among patients with lower levels of satisfaction with life ($b=0.47$) than among those with higher levels of satisfaction with life ($b=0.26$).

The sixth model includes perceived waiting time to be called back by the doctor as a predictor and level of happiness as a moderator. The contribution of the level of happiness in the given model is 2% of the explained variance; thus, the effect of perceived waiting time to be called back by the doctor on perceived quality of healthcare is moderated by the level of happiness by 2%, which is statistically significant ($p<0.05$).

Without level of happiness as a moderator, the effect of perceived waiting time to be called back by the doctor on perceived quality of healthcare is explained by 26%. Different correlation levels exist between perceived waiting time to be called back by the doctor and perceived quality of healthcare ($r_x=0.48$, $p<0.01$), level of happiness with perceived quality of healthcare ($r_m=0.13$, $p<0.01$), and interaction between perceived waiting time to be called back by the doctor and level of happiness with perceived quality of healthcare ($r_{x*m}=-0.10$, $p<0.05$), thus showing a statistically significant moderation effect. Analysing the entire model, including this effect of interaction, shows that 28% of the explained variance is statistically significant ($p<0.01$).

In the simple slopes analysis, it is clear that the effect of perceived waiting time to be called back by the doctor on the perceived quality of healthcare is higher among patients with lower levels of happiness ($b=0.47$) than among those with higher levels of happiness ($b=0.26$).

To summarise the main results, which are represented in Table 7.2, we note that the main moderators were two components of the psychological state, level of satisfaction with life and level of happiness, and one specific patient characteristic, frequency of ED experiences. Separately, the contribution of these moderators in the models is quite small; however, in light of the entire model with interaction effects, we observe different results, and the most significant effect falls on the model with an overall satisfaction with doctors as a predictor and level of satisfaction with life as a moderator that explains 56% of the perceived quality of healthcare variation. In a study by Abolfotouh and colleagues (2017), patients' satisfaction with emergency care was ultimately not associated with their satisfaction with life in general. However, a study by Soufi and colleagues (2010) reported that a high level of overall satisfaction with life might enable a positive outlook, which could inspire patients to be satisfied with their care. Abolfotouh et al. (2017) have disproved this by arguing that patients with high levels of overall satisfaction with life may also lead to higher expectations compared to those with low levels of satisfaction with life. Higher expectations may also contribute to a higher probability of dissatisfaction with care.

Another significant effect concerns the entire model, with accessibility and availability as a predictor and frequency of ED experiences as a moderator that explains 38% of the perceived quality of healthcare variation. According to Maeng, Hao, and Bugler (2017), the frequency of ED visits is determined by high rates of physician office visits and inpatient admissions. The researchers have found that multiple ED visits complemented rather than substituted visits to primary care providers (Maeng et al., 2017).

Entire moderation models that included privacy as a predictor were moderated both by the level of satisfaction with life and the level of happiness with a slight difference; they showed better results with level of happiness. We observe a similar situation regarding the entire models, with perceived waiting time to be called back by the doctor as a predictor that was also moderated both by the level of satisfaction with life and level of happiness, although there was a slight difference in that it showed better results with level of happiness.

Table 7.2. Moderation models (antecedents/controlling factors/perceived quality of healthcare).

Patient Satisfaction Antecedents	Controlling factors		Perceived Quality of Healthcare
	r ² change (%)	r ² (%)	
Global perceptions			
	Frequency of ED experiences		Perceived quality of healthcare
Accessibility and availability	2%	38%	
	Level of satisfaction with life		Perceived quality of healthcare
Privacy	1%	19%	
	Level of happiness		Perceived quality of healthcare
Privacy	3%	21%	
Perceived quality dimensions			
ED personnel:			
	Level of satisfaction with life		Perceived quality of healthcare
Doctors	2%	56%	
Waiting time:			
	Level of happiness		Perceived quality of healthcare
Waiting time to be called back by the doctor (perception)	2%	28%	
	Level of satisfaction with life		Perceived quality of healthcare
Waiting time to be called back by the doctor (perception)	1%	27%	

7.2.2 Test of the moderation models in the relationship between satisfaction/perceived quality of healthcare and consequences

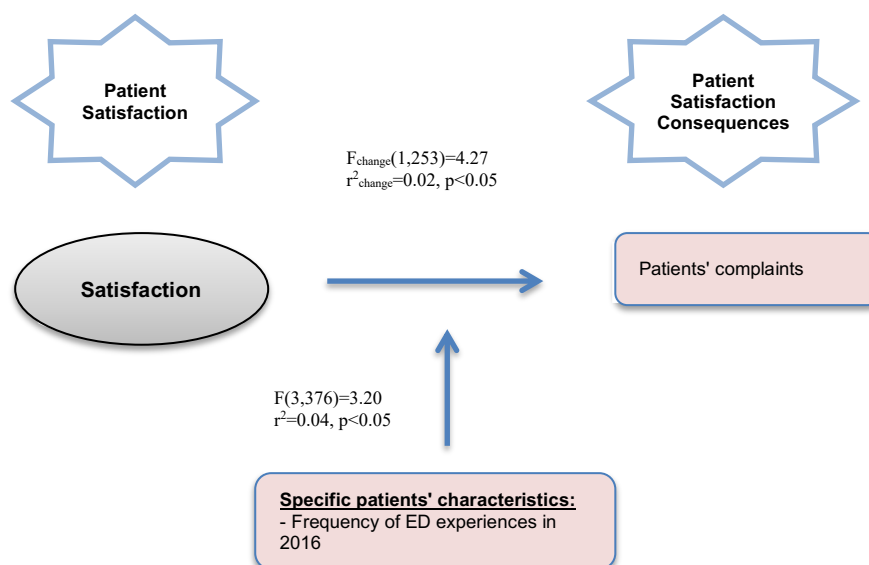
In this section, we determined the effect of controlling factors on the relation between satisfaction/perceived quality of healthcare and patient satisfaction consequences. Following the same rationale, the moderation models were computed, and variables were selected considering that both statistically significant predictors (*satisfaction/perceived quality of healthcare*) and moderators (*frequency of ED experiences in 2016, level of satisfaction with life, age, number of people in household, monthly household income, evaluation of state of health, and level of education*) were significantly correlated with the dependent variable (*agreement with the existence of a fixed user charge payment to access the ED in order to help improve the service and treatments received, regardless of the current charges and exemptions; likeliness of the current payment of fixed user charge to influence the quality of the service and treatment; confidence/trust in the ED; and patients' complaints*). This resulted in 18 different moderation models. We consider only one that was statistically significant in Diagram 24.

This model includes satisfaction as a predictor and frequency of ED experiences as a moderator. The contribution of the frequency of ED experiences in the given model is 2% of the explained variance; thus, the effect of satisfaction on complaints is moderated by the frequency of ED experiences by 2%, which is statistically significant ($p < 0.05$).

Without frequency of ED experiences as a moderator, the effect of satisfaction on complaints is also explained by 2%. We see different correlation levels between satisfaction and complaints ($r_s = 0.10$, $p < 0.01$), frequency of ED experiences with complaints ($r_m = -0.15$, $p < 0.05$), and interaction between satisfaction and frequency of ED experiences with complaints ($r_{s*m} = -0.14$, $p < 0.01$), thus showing a

statistically significant moderation effect. For the entire model, including this effect of interaction, we see that 4% of the explained variance is statistically significant ($p < 0.05$).

Diagram 24. Moderation model (consequences/controlling factors) regarding satisfaction.



The simple slopes analysis shows that the effect of satisfaction on complaints is lower among patients with more frequent ED experiences ($b=0.00$) than among those with less frequent ED experiences ($b=0.05$).

In this section, the same model with perceived quality of healthcare was not taken into account in the given descriptive analysis, as it was not statistically significant. As we learned, perceived quality of healthcare does not play a role in the given moderation models.

7.3 Conclusion

In this chapter, we saw that there are similarities between satisfaction and perceived quality of healthcare, as well as the differences we discussed above. Ultimately, the main patient satisfaction consequence mediated through satisfaction is confidence/trust in the ED. The contribution of satisfaction in this case is greater than among other patient satisfaction consequences.

At the same time, we have more mediation models through perceived quality of healthcare than through satisfaction; however, the results showed that, as in the case of satisfaction, the main patient satisfaction consequence mediated through perceived quality of healthcare is confidence/trust in the ED. The contribution of perceived quality of healthcare in this case is greater than among other patient satisfaction consequences.

The role of satisfaction and perceived quality of healthcare in moderation models between patient satisfaction antecedents or patient satisfaction consequences differs. Moderation models in the relationship between patient satisfaction antecedents were statistically significant only with perceived quality of healthcare, but the moderation model in the relationship between patient satisfaction consequences was statistically significant only with satisfaction, again proving that it is different concept.

Consequently, from the simple slopes analysis, we reach the following conclusions:

1) The issue of privacy and perceived waiting time to be called back by the doctor among patients with lower levels of satisfaction with life and lower levels of happiness is more likely to influence perceived quality of healthcare than among those with higher levels of satisfaction with life and higher levels of happiness.

2) The issue of accessibility and availability among patients with more frequent ED experiences is more likely to influence perceived quality of healthcare than among those with less frequent ED experiences.

3) The issue of an overall satisfaction with doctors among patients with lower levels of satisfaction with life is more likely to influence perceived quality of healthcare than among those with higher levels of satisfaction with life.

4) Furthermore, the issue of satisfaction among patients with more frequent ED experiences is less likely to influence complaints than among those with less frequent ED experiences.

8. Structural equation modeling – Path analysis

8.1 Test of the conceptual model through SEM with direct paths in the mediation model

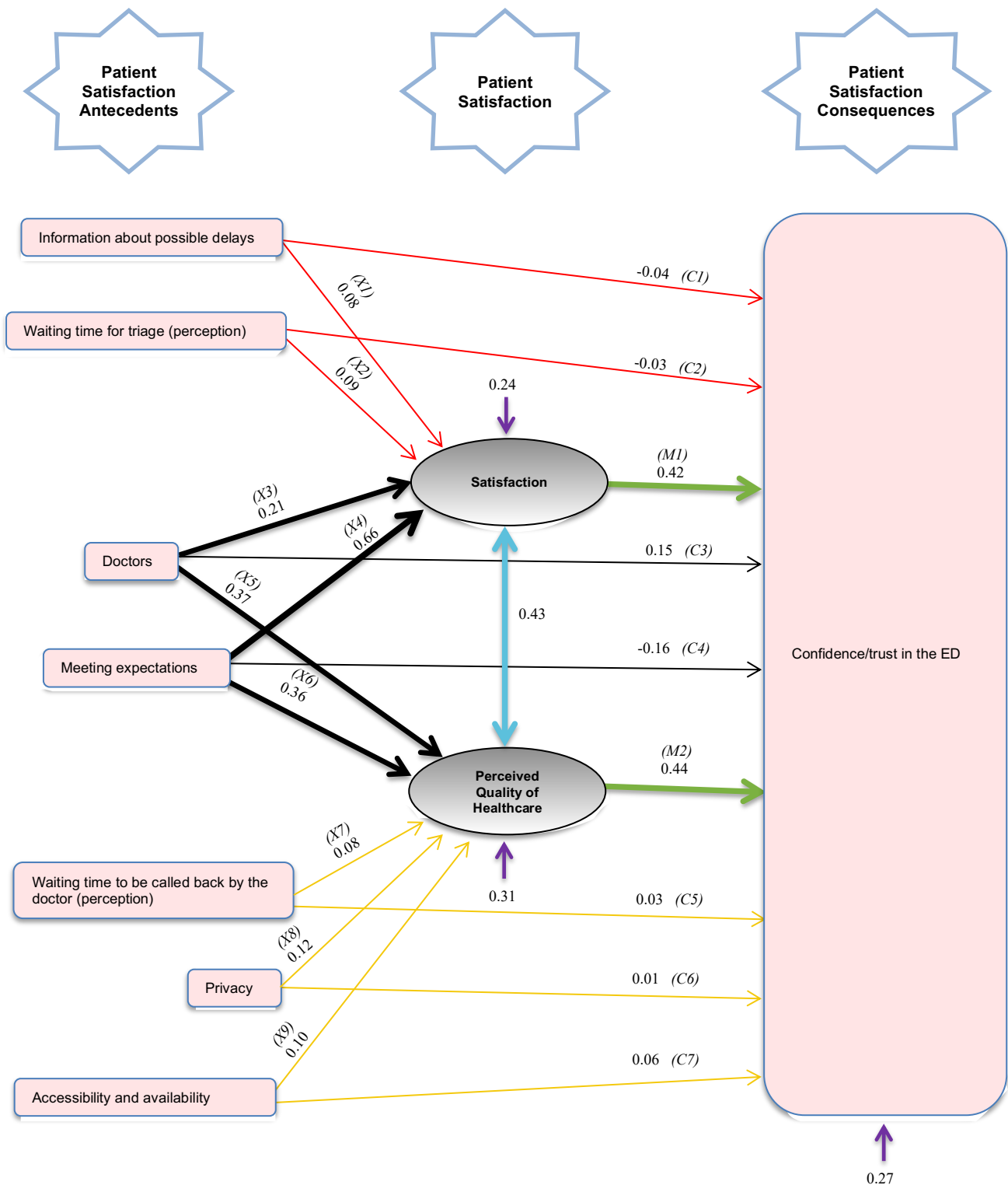
As a final step, following the testing of the conceptual model through mediation and moderation relations, we proceeded to the next stage of the analysis by testing the conceptual model through structural equation modeling (SEM). SEM is a statistical analysis technique that analyses the structural relationships between multiple variables. It combines multiple regression and factor analysis techniques to obtain the structural relationship between the measured variables and constructs. SEM builds models visualised by a graphical path diagram that is usually represented in a matrix of equations (Hox & Bechger, 1998; Iacobucci, 2009). In our case, we used a variation of SEM called path analysis, which allows different constructs to be related without any specifications involving measurement models (Iacobucci, 2009). Variables were selected based on the results from the previous chapter, where we excluded mediation and moderation models using the criteria ($r^2_{\text{change}} < 0.05$). Thus, all moderation models were excluded; at the same time, seven mediation models were included in SEM with the combination of variables demonstrated in Diagram 25.

A general overview of the coefficients of the model with the mediated and direct effects is represented in Table 8.1.

Table 8.1. Coefficients of the model with the mediated and direct effects.

			Path name	Coefficients	t value	p value
Direct paths						
Information about possible delays	~	Confidence/Trust	C1	-0.04	-1.14	0.26
Qualitative perceived waiting time for triage	~	Confidence/Trust	C2	-0.03	-0.87	0.39
Doctors	~	Confidence/Trust	C3	0.15	3.17	0.00
Meeting expectations	~	Confidence/Trust	C4	-0.16	-2.47	0.01
Qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests	~	Confidence/Trust	C5	0.03	0.86	0.39
Privacy	~	Confidence/Trust	C6	0.01	0.14	0.89
Accessibility and availability	~	Confidence/Trust	C7	0.06	1.29	0.20
			Sum of direct paths	0.03	0.30	0.76
Decomposed mediated paths						
Information about possible delays	~	Satisfaction	X1	0.08	2.97	0.00
Qualitative perceived waiting time for triage	~	Satisfaction	X2	0.09	3.13	0.00
Doctors	~	Satisfaction	X3	0.21	5.74	0.00
Meeting expectations	~	Satisfaction	X4	0.66	21.52	0.00
Doctors	~	PQHC	X5	0.37	8.40	0.00
Meeting expectations	~	PQHC	X6	0.36	7.65	0.00
Qualitative perceived waiting time to be called back by the doctor after examinations and/or tests	~	PQHC	X7	0.08	2.03	0.04
Privacy	~	PQHC	X8	0.12	3.36	0.00
Accessibility and availability	~	PQHC	X9	0.10	2.21	0.03
Satisfaction	~	Confidence/Trust	M1	0.42	5.95	0.00
PQHC	~	Confidence/Trust	M2	0.44	7.31	0.00
Mediated paths						
→			X1*M1	0.03	2.65	0.01
→			X2*M1	0.04	2.77	0.01
→			X3*M1	0.10	4.18	0.00
→			X4*M1	0.28	5.70	0.00
→			X5*M2	0.16	5.53	0.00
→			X6*M2	0.16	5.27	0.00
→			X7*M2	0.03	1.95	0.05
→			X8*M2	0.05	3.05	0.00
→			X9*M2	0.04	2.12	0.03

Diagram 25. Conceptual model with direct paths.



In order to judge the model fit, we need to draw upon the suggestions of Hu and Bentler (1999), who indicated the following criteria regarding model fit evaluation: RMSEA (≤ 0.06 , 90% CI ≤ 0.06 , CFI ≥ 0.95), SRMR (≤ 0.08), CFI (≥ 0.95), and TLI (≥ 0.95). Other researchers (Brown, 2006; Iacobucci, 2010; Brown, 2015) have also used similar criteria that let us check if our model fit corresponds to the criteria above.

The results show that our complete mediation model has an overall acceptable fit: chi-square (5) = 17.15, $p < 0.00$, RMSEA = 0.10 [0.05, 0.14], SRMR = 0.02, CFI = 0.99, TLI = 0.95. Our SRMR, CFI, and TLI are within the specified criteria that indicate a good model fit (Hu and Bentler 1999; Brown, 2006; Brown, 2015; Iacobucci, 2010). However, we need to mention some deviations regarding RMSEA values. In some research, RMSEA values between 0.08 and 0.05 are indicators of moderate model fit (Iacobucci, 2010; Brown, 2015); according to Browne and Cudeck (1993), RMSEA values between 0.08 and 0.10 are considered a mediocre fit; and in other research, RMSEA values between 0.10 and 0.06 are considered acceptable (Gau, 2010).

In this section, we decided to test the relevance of the direct paths, non-mediated relation within the mediation model, specifically seven direct paths ($C1$, $C2$, $C3$, $C4$, $C5$, $C6$, and $C7$) between seven independent variables (*information about possible delays, qualitative perceived waiting time for triage, doctors, meeting expectations, qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests, privacy, and accessibility and availability*) and the dependent variable (*confidence/trust in the ED*); this is represented in Diagram 25.

This type of test was implemented in order to understand whether the direct paths relationship can still explain confidence/trust in the ED within the mediation model. In general, an overall contribution of the direct paths is not statistically significant ($p > 0.05$). Only two direct paths are statistically significant: doctors ($p \leq 0.01$) and meeting expectations ($p = 0.01$). Importantly, the summed contribution of the direct paths is not statistically significant in the mediation model.

We must then consider the decomposed mediated paths, including nine individual associations ($X1$, $X2$, $X3$, $X4$, $X5$, $X6$, $X7$, $X8$, and $X9$) between seven independent variables (*information about possible delays, qualitative perceived waiting time for triage, doctors, meeting expectations, qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests, privacy, and accessibility and availability*) and two dependent variables (*satisfaction and perceived quality of healthcare*), as well as two links ($M1$, $M2$) between two independent variables (*satisfaction/perceived quality of healthcare*) and one dependent variable (*confidence/trust in the ED*); all together, this allowed us observe nine mediated paths ($X1*M1$, $X2*M1$, $X3*M1$, $X4*M1$, $X5*M2$, $X6*M2$, $X7*M2$, $X8*M2$, and $X9*M2$); this is shown in Diagram 25. The analysis of the coefficients reveals that all mediated paths ($X*M$ products) are statistically significant. Still, we note that, among these mediated paths, the mediated effect of an overall satisfaction with doctors and of meeting expectations have the strongest effects (coefficients > 0.10).

Even though a limited number of researchers have used SEM techniques in the context of the ED, several have explored the structural relationships between patient satisfaction and a variety of other patient experience factors and healthcare quality metrics. Sorup, Michel, and Peter (2013) have empirically tested the drivers of ED patient satisfaction using SEM techniques. They have reported a positive and significant association between perceived safety and waiting time, perceived safety and infrastructure, and perceived safety and precise information delivery. The researchers conclude that minimising waiting times would have the highest impact on increasing satisfaction (Sorup et al., 2013). In

addition, enhancing the connection between perceived safety, information delivery, waiting times, and infrastructure would improve ED patient satisfaction feedback (Sorup et al., 2013). Aragon and Gesell (2003) have tested the theory of patient satisfaction across emergency patients randomly sampled at the national level. The researchers used a multi-group structural equation model to show that waiting time, physician service, and nursing satisfaction explained 41%, 48%, and 11%, respectively, of overall patient satisfaction (Aragon & Gesell, 2003). Across genders, physician service, waiting time, and nursing satisfaction explained 92% of overall satisfaction among female patients and 93% of overall satisfaction among male patients (Aragon & Gesell, 2003).

The strongest relation and effect in our mediation model is meeting expectations, which influences confidence/trust in the ED through satisfaction ($r=0.28$), followed by meeting expectations and overall satisfaction with doctors through perceived quality of healthcare identically, which influence confidence/trust in the ED ($r=0.16$), and overall satisfaction with doctors, which influences confidence/trust in the ED through satisfaction ($r=0.10$).

All other mediated paths have less significant contributions in the mediation model: privacy, which influences confidence/trust in the ED through perceived quality of healthcare ($r=0.05$); qualitative perceived waiting time for triage through satisfaction and accessibility and availability through perceived quality of healthcare identically influence confidence/trust in the ED ($r=0.04$); and information about possible delays through satisfaction, and qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests through perceived quality of healthcare identically influence confidence/trust in the ED ($r=0.03$).

8.2 Test of the conceptual model through SEM without direct paths in the mediation model

After testing our conceptual model by including direct paths in the mediation model and further realising that, taken together, these direct paths' relation was not significant and not relevant in the model, in this section, we decided to test the mediation model without them, removing the direct paths, as demonstrated in Diagram 26.

A general overview of the coefficients of the model with the mediated effects is represented in Table 8.2 below.

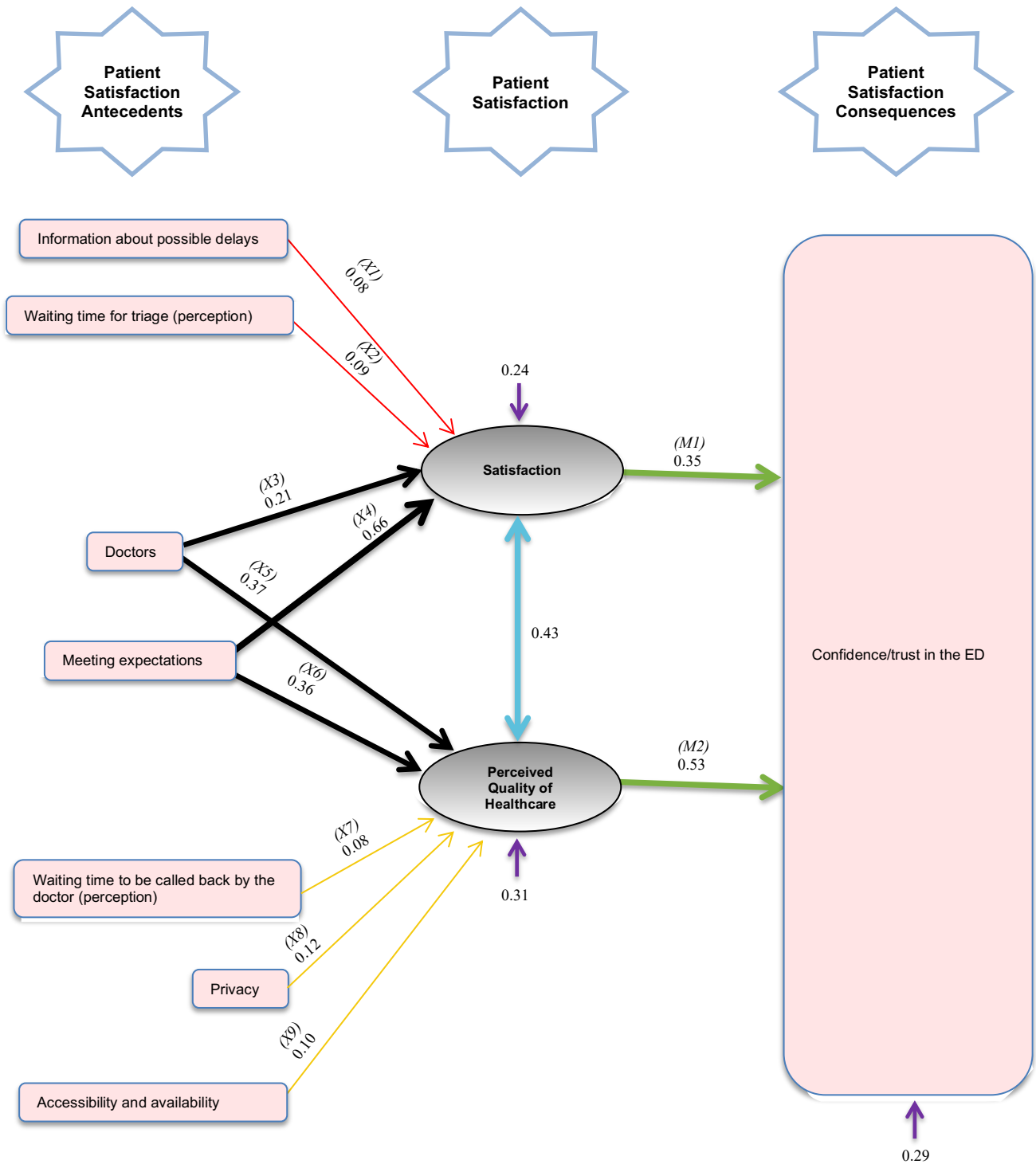
Table 8.2. Coefficients of the model with the mediated effects.

		Path name	Coefficients	t value	p value
Decomposed mediated paths					
Information about possible delays	~ Satisfaction	X1	0.08	2.97	0.00
Qualitative perceived waiting time for triage	~ Satisfaction	X2	0.09	3.13	0.00
Doctors	~ Satisfaction	X3	0.21	5.74	0.00
Meeting expectations	~ Satisfaction	X4	0.66	21.52	0.00
Doctors	~ PQHC	X5	0.37	8.40	0.00
Meeting expectations	~ PQHC	X6	0.36	7.65	0.00
Qualitative perceived waiting time to be called back by the doctor after examinations and/or tests	~ PQHC	X7	0.08	2.03	0.04
Privacy	~ PQHC	X8	0.12	3.36	0.00
Accessibility and availability	~ PQHC	X9	0.10	2.21	0.03
Satisfaction	~ Confidence/Trust	M1	0.35	6.52	0.00
PQHC	~ Confidence/Trust	M2	0.53	10.15	0.00
Mediated paths					
→		X1*M1	0.03	2.70	0.01
→		X2*M1	0.03	2.82	0.00
→		X3*M1	0.10	4.33	0.00
→		X4*M1	0.23	6.21	0.00

→
→
→
→
→

X5*M2	0.20	6.43	0.00
X6*M2	0.19	6.15	0.00
X7*M2	0.04	1.98	0.05
X8*M2	0.06	3.18	0.00
X9*M2	0.05	2.16	0.03

Diagram 26. Conceptual model without direct paths.



The results show that the given complete mediation model has an overall acceptable fit: chi-square (12) = 36.45, $p < 0.00$; RMSEA = 0.08 [0.06, 0.12], SRMR = 0.02, CFI = 0.98, TLI = 0.96. Our

SRMR, CFI, and TLI indicate a good model fit, while our RMSEA values are slightly better than in the previous model and are acceptable. Regardless, this model is slightly better than the previous one in terms of an overall fit. In order to support this idea, we compared the relative fit of these two models using the Akaike information criterion (AIC) and Bayesian information criterion (BIC) as model selection criteria, where a lower AIC or BIC value indicates a better fit (Raftery, 1995; Kline, 2011; Mohammed et al., 2015). Our conceptual model with direct paths had the following values: AIC = 2597, BIC = 2677. Our final model without direct paths had values of AIC = 2602 and BIC = 2656. Here, we notice that, according to the AIC value, the model with direct paths is slightly better than the final model without direct paths. However, according to the BIC value, the final model without direct paths is slightly better than the model with direct paths. We must focus on the BIC, as it is considered to perform better than the AIC in finding the best true model; it is the most accurate model selection statistic and is generally preferable in all cases via simulation experiments (Shao, 1997; Bulteel et al., 2013; Raffalovich et al., 2008). The AIC often or almost always selects more complex or overly complex models than the BIC, showing an overall poor performance (Vrieze, 2012; Bulteel et al., 2013). Hence, using the BIC as a model selection criterion, we can say that our final conceptual model without direct paths has a better fit than the model with direct paths.

Finally, in this section, we can conclude which variables contribute more to understanding the level of confidence/trust in the ED. As Table 8.2 shows, the analysis of the coefficients reveals that the results slightly changed when we removed the direct paths from Diagram 26; however, all mediated paths are still statistically significant. Again, we note that, among these mediated paths, the mediated effect of an overall satisfaction with doctors and of meeting expectations has the strongest effects (coefficients > 0.10).

The strongest relation and effect in this mediation model is meeting expectations that influence confidence/trust in the ED through satisfaction, ($r=0.23$), followed by overall satisfaction with doctors through perceived quality of healthcare, ($r=0.20$); meeting expectations that influence confidence/trust in the ED through perceived quality of healthcare, ($r=0.19$); and overall satisfaction with doctors through satisfaction, ($r=0.10$). Thus, we can assume that meeting expectations is more related (with a stronger effect) to satisfaction, and overall satisfaction with doctors in turn is more related (with a stronger effect) to perceived quality of healthcare, thus proving its prevailing association with these variables.

All other mediated paths have a less significant contribution to the mediation model: privacy that influences confidence/trust in the ED through perceived quality of healthcare, ($r=0.06$), accessibility and availability through perceived quality of healthcare, ($r=0.05$); and qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests through perceived quality of healthcare, ($r=0.04$); in addition, information about possible delays and qualitative perceived waiting time for triage through satisfaction identically influence confidence/trust in the ED, ($r=0.03$).

8.3 Conclusion

Different researchers have used different approaches and different sets of measured variables, which has led to different results and conclusions. In our case, we explained the rationale for choosing a certain set of variables in the final model step by step, as well as the importance of distinguishing between satisfaction and perceived quality of healthcare.

More variables influence confidence/trust in the ED through perceived quality of healthcare than through satisfaction; however, we observe the strongest contribution in the mediation model through satisfaction, which shows its dominant role over perceived quality of healthcare. We observed the strongest contribution in our mediation model through satisfaction, and the main patient satisfaction antecedent, meeting expectations, also had a slightly lower but quite similar correlation level through perceived quality of healthcare. Another patient satisfaction antecedent, overall satisfaction with doctors, mostly matters through perceived quality of healthcare, and at a lower magnitude, through satisfaction, thus proving that both satisfaction and perceived quality of healthcare play a prominent role in the mediation model to understand the level of confidence/trust in the ED.

Meeting expectations and overall satisfaction with doctors, therefore, are the main patient satisfaction antecedents to contribute to understanding the level of confidence/trust in the ED and influence it as the main patient satisfaction consequence.

9. Conclusion and discussion

9.1 Conclusion

According to the main purpose of this research, we defined and tested our conceptual model, investigating the relationships between patient satisfaction, its antecedents, and its impact on consequences using proper measurement instruments in the context of the ED.

The test of the conceptual model was done, first, with partial models, testing the mediating effect of the antecedents on the consequences through satisfaction and perceived quality of healthcare, and testing the moderating effect of controlling factors on the relationships between patient satisfaction, its antecedents and consequences; and second, with a full model including only the most statistically relevant variables of the partial models. This extensive analysis allowed us to identify the key factors that promote patient satisfaction in the ED, which, in turn influence a set of performance factors that can be used for improved resource allocation and the definition of priorities by hospital and health system managers.

All together, the data collection and extensive analysis of the data provided an empirical observation of the proposed relationships and empirical evidence regarding the accuracy and relevance of the proposed hypotheses.

Finally, we must review our hypotheses based on our results.

Hypotheses

H1: Meeting expectations, perceived quality dimensions, and global perceptions will have an indirect effect on a set of performance factors (such as payment perception, confidence/trust, and complaints) mediated by patient satisfaction. This hypothesis was tested using only a set of key antecedents and a key performance factor. These key variables were selected based on the results of the partial models testing the mediating effect. According to these models, our hypothesis was partially supported because not all antecedents and consequences had meaningful associations. In this sense, a full mediating model was tested using only several antecedents and one main performance factor with meaningful associations. First, the results of this full model showed that a higher overall level of satisfaction with doctors and meeting patients' expectations is associated with improvements in both satisfaction and perceived quality of healthcare. Among other important factors that will improve satisfaction or perceived quality of healthcare, but at a lower magnitude, are the provision of information about possible delays in receiving treatment or waiting times, managing qualitative perceptions regarding waiting time for triage and waiting time to be called back by the doctor after the examinations and/or tests, privacy safeguards, and accessibility and availability. However, we must note that privacy safeguards, managing qualitative perceptions regarding waiting time to be called back by the doctor after the examinations and/or tests, and accessibility and availability are only associated with improvements in perceived quality of healthcare, while the provision of information about possible delays in receiving treatment or waiting times as well as management of qualitative perceptions regarding waiting time for triage are only associated with improvements in satisfaction. Our results also showed that higher levels of satisfaction and

perceived quality of healthcare will positively influence one main performance factor, confidence/trust in the ED, thus emphasising the mediating role of satisfaction and perceived quality of healthcare in the given model, and the indirect effect of a certain set of patient satisfaction antecedents on confidence/trust in the ED. Even though, taken together, direct paths were ultimately not statistically significant, the overall level of satisfaction with doctors and meeting patients' expectations can still directly explain confidence/trust in the ED without the mediating role of satisfaction and perceived quality of healthcare. Hence, the overall level of satisfaction with doctors and meeting patients' expectations can both directly and indirectly influence confidence/trust in the ED.

H2: Controlling factors will influence the levels and relationships between patient satisfaction, its antecedents, and consequences. Our results showed that controlling factors do not have a strong, significant impact on the relationships between patient satisfaction, its antecedents, and consequences. That may be due to controlling factors in the model that were used as moderators. If these factors were used as predictors, the results would likely be different. Another possible reason is that it was tested in the framework of a public hospital. Had it been tested in the framework of a private hospital, it could also lead to different results.

Consequently, conceptualising patient satisfaction in the ED context based on our results, we may say that perceived quality of healthcare and satisfaction are integral to each other. In turn, satisfaction and perceived quality of healthcare play an important but distinct mediating role in strengthening the effect of patient satisfaction antecedents on patient satisfaction consequences, where the strongest patient satisfaction antecedents (overall level of satisfaction with doctors and meeting patients' expectations) and the main patient satisfaction consequence (confidence/trust in the ED) form a connecting link between two concepts (satisfaction and perceived quality of healthcare).

9.2 Discussion

Patient satisfaction with emergency care has been studied as one of the most important indicators that reflects the quality of services (Jalali et al., 2016). However, several researchers have demonstrated that quality and satisfaction are distinct concepts and emphasised the importance of satisfaction as a mediator in contrast to perceived quality (Lei & Jolibert, 2012). Patient satisfaction plays an important mediating role, which is influenced by patient perception of healthcare quality and has a significant impact on patient trust (Alrubaiee & Alkaa'ida, 2011). Trust was considered an important outcome (Pearson & Raeke, 2000) and was found to be associated with health outcomes (Lee & Lin, 2011, Birkhäuser et al., 2017, Chandra et al., 2018), satisfaction (Lee & Lin, 2011, Thom et al., 2002, Hall et al., 2002, Birkhäuser et al., 2017, Chandra et al., 2018), and perceived quality of healthcare (Chandra et. al., 2018). Our study shows that both satisfaction and perceived quality of healthcare are subjective, distinct concepts; they play different mediating roles, and the main outcome was ultimately confidence/trust in the ED. Thom et al. (2004) have noted that trust is distinct from satisfaction, as satisfaction looks

backward, while trust looks forward, and the latter has a strong emotional component (Thom et al., 2004). Confidence/trust may encompass not only the procedures and processes for patient treatment, but also the staff. Confidence/trust in the clinical team was associated with higher overall satisfaction (doctors $p=0.002$, nurses $p=0.008$; Jones et al., 2017). In addition, trust in physicians was found to be positively correlated with trust in healthcare organisations (Smith, 2017). According to a study by Kubicek and colleagues (2012), convenience and confidence/trust in the ED doctors were some of the primary reasons that patients visited the ED under investigation. The patients interviewed gave reasons for visiting the ED such as, '*Doctors here are better*' and '*I trust doctors here*' (Kubicek et al., 2012). Doctors in EDs are prone to high levels of work-related stress for multiple reasons, including dealing with patients with different problems, most of which are urgent, and the urgency expressed by patients in EDs who feel they should receive immediate and adequate care (Babitsch, Braun, Borde and David, 2008). Doctors play a significant role in reassuring patients and enhancing their overall experience through communication. Some researchers have shown that physicians' communication skills significantly influence the level of trust (Gopichandran & Chetlapalli, 2015) and are an important dimension on which patients base their trust (Pearson et al., 2000). Other researchers have also noted that physicians' behaviour (competency, communication, caring, and honesty) is associated with trust (Thom, 2000). According to our results, there is an association between physicians' communication attributes and confidence/trust involving the way the doctor explains a health problem (diagnosis); explanations the doctor gives of the exams performed and the objectives of the treatment to be undertaken; and information provided on precautions to be taken, recommendations, and how to take or apply the medications prescribed. In addition, doctors' friendliness, helpfulness, and competence and professionalism were also associated with confidence/trust. Researchers have emphasised the importance of improving trust as an aspect of healthcare quality (Thom et al., 2004). In our mediation model, we reveal that overall satisfaction with doctors can better explain confidence/trust in the ED through perceived quality of healthcare; however, meeting expectations can better explain confidence/trust in the ED through satisfaction. Unmet expectations were found to be associated with lower patient satisfaction and were seen more frequently among patients who lack trust in physicians (Bell et al., 2002). A study that investigated patient expectations of ED care emphasised that patients have expectations for short wait times and value effective communication, which is similar across all triage levels (Cooke et al., 2006). According to Lateef (2011), patient expectations have continued to evolve and increase, and emergency care providers must understand this to improve patient outcomes and reduce the likelihood of liability. However, patients might have unrealistic expectations that might not be met and thus negatively affect their perceived quality of care (Watt et al., 2005). As some patients' expectations are realistic and those of others unrealistic, managing them can be challenging (Lateef, 2011). Trust and expectations play an important role in the doctor-patient relationship (Ram & Gowdappa, 2015). Several researchers have noted that trust was more complex than expectations, as the older adults could be satisfied but not trust providers, or they could trust providers but not be satisfied (Hupcey et al., 2004). Other researchers have also emphasised the fact that patients may be satisfied with the visit but may not have a sense of trust and vice versa (Thom et al., 2004). In our

research, we considered confidence/trust to be an outcome; thus, our results showed that a certain set of variables (overall satisfaction with doctors and meeting expectations) can bypass satisfaction and perceived quality of healthcare and have a direct influence on confidence/trust, while other sets of variables (qualitative perceived waiting time for triage and information about possible delays) cannot bypass satisfaction; still others (qualitative perceived waiting time to be called back by the doctor after the examinations and/or tests, privacy, and accessibility and availability) cannot bypass perceived quality of healthcare without any chance of direct influence on confidence/trust. Hence, this analysis demonstrates the complexity of the research topic under discussion and the importance of investigating it further.

Another objective of our research was dedicated to the accuracy of patients' perceptions using objective, clinical data. The main emphasis was on waiting time perceptions. Patients and the community, in general, expect that the ED can provide timely care and will have the capacity to respond appropriately in case of a public health emergency (McHugh et al., 2012). Perceived waiting times may have an effect on patient satisfaction with care (Magro & Aquilina, 2016). If the waiting time is shorter, patients are likely to have more confidence in the healthcare process and perceive staff to be more compassionate (Spaite et al., 2002, Bleustein et al., 2014). Our results show that patients (both female and male) are not very accurate in their perceptions regarding waiting times. Only 19.7% of the respondents were able to accurately estimate waiting time for triage, and 21% of the respondents were able to accurately estimate waiting time after triage. More respondents (37.3%) were able to accurately estimate the total time spent in the ED. Interestingly, our results are quite consistent with other results from the literature. Researchers have noted that 22.3% of respondents were able to accurately estimate the time from triage until examination by an emergency physician, and 36.6% of the respondents were able to accurately estimate the total time spent in the ED (Thompson et al., 1996). According to our results, there is significantly greater bias towards reporting longer waiting times than the ones recorded. We observe a high percentage of patients who tend to overestimate waiting time for triage (75.6%), waiting time after triage (68.7%), and the total time spent in the ED (41.7%). The researchers noted that patients have some difficulty in estimating a correct actual waiting time: physician waiting time (49.9% overestimated it, while 27.8% underestimated it) and total waiting time (24.5% overestimated it, while 38.9% underestimated it; Thompson et al., 1996). More specifically, our results show that younger patients and less frequent users of ED tend to accurately estimate the total time spent in the ED. The overestimation of waiting time after triage may be partly associated with the waiting location after triage, the place where the patient spent most time waiting to be seen after triage, which may influence quantitative and qualitative waiting time perceptions according to our results. The researchers emphasised the importance of managing waiting time perceptions rather than decreasing actual waiting time (Thompson et al., 1996). Efforts have been made to implement measures such as informing patients how long they are likely to wait (Dansky & Miles, 1997), keeping patients occupied during the wait period (Dansky & Miles, 1997), using public information systems to provide clear instructions (Oermann et al., 2003, O'Neill et al., 2004), and educating patients (Oermann et al., 2002). According to our results, it is particularly important to pay

attention to a specific patient group that has a tendency to overestimate waiting time, taking into account the issues that may influence the formation of these perceptions.

A study by Adeniji and Mash (2016) has demonstrated a correlation between a poor or incorrect understanding of the triage system and negative patient perceptions of medical services rendered. Patients coded green defined ED nurses as unprofessional and impolite, whereas those coded orange or yellow exhibited more tolerance of the ED performance (Adeniji & Mash, 2016). Our results show that most patients assigned a green, yellow, or orange colour in triage tend to overestimate waiting times, with slight discrepancies between the categories. In turn, patients and staff that assign a triage category can differ in terms of their perceptions of urgency and the severity of the health condition, which can provoke patient dissatisfaction (Toloo et al., 2016). Toloo et al. (2016) have confirmed the tendency for patients to over-rate their priority and to disagree with the actual triage category they were given; over 48 % of the participants expected to be assigned higher priority, and 20 % expected to be assigned lower priority, which shows the discrepancy between patients' perceptions and nurses' assessments (Toloo et al., 2016). According to our results, 75.5% of patients agreed with the colour assigned. Our results show that participants who agreed with the colour assigned perceived their situation to be a lower severity level than those who did not agree with the colour assigned. In turn, participants who did not agree with the colour assigned expected to be assigned a higher priority level and tended to have symptoms or complaints for a longer period of time before going to the ED than those who agreed with the colour assigned. However, the reasons for this may vary. The length of time that patients wait with symptoms before going to the ED may be influenced by several factors, including their insurance coverage or ability to pay. In Kirzinger, Cohen, and Gindi (2012), 28% of uninsured patients in the 19–25 age group had to wait before receiving medical care due to costs, compared to only 7.6% of individuals with private insurance and 10.1% of patients with public coverage. In a study by Bustamante et al. (2012), undocumented immigrants were more likely to delay a doctor visit than documented migrants, showing that legal status could also influence healthcare access and use. Delayed healthcare access or utilisation are likely to influence the quality of care that patients receive because they may present to the ED when the symptoms are much more difficult to treat.

9.3 Policy and practice implications of the results

Based on the discussion above, we must note that it is important to measure and consider satisfaction and perceived quality of healthcare as different constructs because, ultimately, patients form different views of these two concepts. First, considerable attention should be paid to patients' key expectations.

The overall level of satisfaction with doctors also plays a key role in the sequence of priorities. In our case, we evaluate this aspect based on friendliness and helpfulness; competence and professionalism; the way the doctor explains a health problem (diagnosis); explanations the doctor gives of the exams performed and the objectives of the treatment to be undertaken; information provided on precautions to be taken, recommendations, and how to take or apply the medications prescribed. An improvement in

each of these attributes may promote patient satisfaction/perceived quality of healthcare and in turn lead to confidence/trust in the ED. Barbosa et al. (2016) have noted that medical emergency teams (METs) can significantly improve patient outcomes, so there is a need to invest in education and training healthcare professionals to enable them to work with the new standards of practice. Clear communication is an important aspect in this regard, as misunderstandings between doctors and patients may lead to unfavourable health outcomes, which may then influence confidence/trust in the ED.

Doctors' performance may be partly connected to accessibility and availability, which we evaluate based on location, orientation, distance between the different areas, and the availability of equipment and specialist staff. In order to improve some of these attributes, it is important to invest in new, modern equipment and train an appropriate amount of specialist staff. An inappropriate number of specialist staff and inaccessibility of proper equipment may result in poor health outcomes, thus influencing patients' confidence/trust in the ED.

Furthermore, accessibility and availability may partly refer to the issue of privacy. In order to safeguard privacy, it is important to re-design and re-innovate the ED, which requires extra investments and financial resources. In one study, the re-design of the ED to increase privacy resulted in improved ED patient satisfaction and privacy (Lin et al., 2013), which are grounds for building confidence/trust as well as reducing cases of complaints.

Ultimately, it is important to manage qualitative perceptions of waiting times, as different patients may perceive the same waiting time interval in a different way. Information about possible delays in receiving treatment/waiting times can be provided by applying various kinds of modern IT technologies. Many hospitals have developed ways to keep patients abreast of expected delays, including announcements, websites, billboards, and smartphone applications (Arha, 2017). Thus, communicating waiting times to patients can help manage their expectations (Arha, 2017).

Significant correlations were found between senior management support, engagement, and hospital-wide quality outcomes (Parand et al., 2014). According to healthcare providers, policymakers, and payers, effective leadership and management is an enabling factor for quality of care (Mosadeghrad, 2014). The amount of power at their disposal for decision-making, selecting and recruiting employees, allocating funds, and other managerial activities has a direct impact on healthcare quality (Mosadeghrad, 2014).

9.4 Limitations and recommendations for future research

Patient experience measures have been shown to be indicators of healthcare quality; at the same time, however, a common approach to defining 'patient satisfaction' was lacking (Manary et al., 2013). It became obvious that there was lack of clarity in the definition of the concept of patient satisfaction, as well as lack of deep investigation into patient views and beliefs (Rapport et al., 2019). Besides, along with the emergence of new evidence and the discovery of new dimensions, the measurement of patient satisfaction has changed and expanded. Even though patient satisfaction has been considered an indicator of the quality of healthcare, the relationship between the two constructs was not clear (Ng & Luk, 2019).

Thus, we decided to fill this gap in the scientific literature and find out whether patient satisfaction and perceived quality of healthcare are identical concepts with the same common predictors and the same impact, or whether there is a huge difference between the two concepts and to what extent.

This study is based upon the assumption that participant responses accurately reflected their perceptions and attitudes with respect to patient satisfaction and related constructs, and that measuring those perceptions provided a reasonable representation of reality. In addition, the data collection was an object of some limitations, as it was confined to one ED in one country and only considered the Portuguese-speaking population. We chose the sample distribution with a 5% margin of error instead of a 4% or 3% margin of error due to time and financial constraints, as the entire study was funded through the financial resources of the thesis author. A larger sample size could have generated more accurate results. The results can thus only be generalised to the populations of the specific organisations studied, even if those organisations were selected for their representativeness of the health system.

Ng and Luk (2019) have noted that many studies have methodological faults. Iseli *et al.* (2014) found only four instruments that contained detailed information regarding their development and psychometric properties, and most of the tools had significant methodological limitations and a lack of evaluation. Similar to Beattie *et al.* (2015), scholars have noted that providers seeking an instrument to assess satisfaction should carefully consider all positive and negative features of the available studies and select only those that fully meet the requirements. Given the lack of proper instruments designed specifically for the ED, we took into account and reviewed various questionnaires in the Portuguese context. Our questionnaire was adapted, and other questions were added that enabled us to identify important issues according to our conceptual model. Besides, the appropriateness of the questionnaire was tested by administering the instrument to a small subset of the study's population by launching a pilot survey with 20 interviewees. In addition, this is a mixed-method study with the in-depth examination of an issue from multiple perspectives in qualitative and quantitative research. An exploratory phase of research was necessary in order to examine the nature of EDs and identify the major gaps that could be addressed in the quantitative phase of research in order to obtain more accurate results.

The limitations of the theoretical part refer to proving the relationships of the proposed model based only on a cross-sectional study. Longitudinal studies would be a preferable choice, as some of the effects may present temporal lags. The limitations of the practical part relate to the context of research itself and the possibility of generalising findings and the extent to which recommendations to managers of EDs can be generalised to other non-studied organisations, primarily if they vary in size and structure.

In further research, we encourage comparing various EDs within one country on a national level, or in different countries on an international level in combination with a longitudinal study. Analysis of the concept of patient satisfaction is still in its initial stage, and it needs to be considered in the wider context of healthcare settings (Ng & Luk, 2019). In some countries, problems such as a lack of comprehensive regulations and legislation concerning functionality and the structure of emergency system persist. In addition, other important aspects that should be defined clearly include education, the training of personnel, and the financing structure (Rotaru & Voicescu, n.d.).

Thus, we identified key factors promoting patient satisfaction and perceived quality of healthcare in the ED, their main outcome (consequence), demonstrated the differences and similarities between the two concepts, as well as their role in the conceptual model. However, it is still necessary to study the level of relationship among these factors and their impact after the implementation of improvement measures in practice, as well as the economic efficiency of these measures.

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The exploratory phase of research

Introduction

In recent decades, organisations have paid increasing attention to customer experience. Multiple surveys and subsequent customer policies have been developed to ensure that clients' needs are properly met. Healthcare providers have also focused on patients' experience to improve the clinical setting and make healthcare delivery more patient-centred and effective (Berkowitz, 2016). This phase of the research attempts to gain insight into the nature of emergency departments (ED) and their organisation.

Emergency medicine is a unique area of clinical practice, with special requirements, processes, and provider-patient relationships. Thus, the main aim of this phase of the research was to investigate the nature of the ED and identify the major gaps that can be covered in the quantitative phase of research. To achieve this goal, the focus was on interviewing and gathering necessary information from ED professionals. The rationale for integrating both approaches is to have one approach complement the other (Regnault, Willgoss & Barbic, 2018). A mixed-methods study benefits from the in-depth examination of an issue from multiple perspectives in qualitative research and from the use of raw data and figures in quantitative research. This allows a more comprehensive examination of a research issue from more than one methodological viewpoint. The concurrent design of mixed methods makes it possible to take advantage of and gain the complementary strengths of using both extant knowledge and qualitative interview experiences to guide the quantitative data collection and analysis (Johnson & Onwuegbuzie, 2004).

Methods of the exploratory phase of research

In-depth semi-structured interviews were conducted with 12 ED participants, including four managers/administrators and eight health professionals (four doctors and four nurses) at four large, urban hospitals of different types in the region of Lisboa e Vale do Tejo (two public, one private, and one public-private) regarding their vision, experiences, and perceptions about EDs.

In Portugal, the National Health Service (NHS) is decentralised into five health regions and 18 sub-regions with regional health administration (Almeida, 1999). In addition to public and private hospitals in Portugal, some hospitals in a public-private partnership are integrated in the NHS, although they have private investment. The reason for establishing 'public-private partnerships' (PPPs) in Portugal was 'to promote innovative ways of sharing risk for healthcare delivery, such as new management experiences, as well as the participation of the private sector in construction, financing, and the exploration of hospital units of the National Health Service' (Serviço Nacional de Saúde [SNS], 2016, n.p.).

According to data from the National Statistics Institute (NSI), in 2015, there were 225 hospitals in Portugal, of which 114 belonged to the official health services (110 public hospitals and four hospitals in public-private partnership; together, these are 50.7% of the total hospitals), and 111 were private hospitals (49.3%; Instituto Nacional de Estatística, Statistics Portugal, 2017). At the same time, an increased number of emergency visits was observed in Portugal (European Observatory on Health Care System [EOHCS], 1999). As the NSI has stated, in 2015, emergency visits in hospitals numbered approximately 7.3 million, with 84.8% of the cases in public hospitals or in public-private partnership hospitals, an increase of 0.6% compared to 2005. There was also a notable increase in cases in private hospitals: 15.2% in 2015 compared to 7.1% in 2005 (Instituto Nacional de Estatística, Statistics Portugal, 2017).

Understanding how interviewees perceive various aspects of the ED can shed light on the situation in hospitals and reveal strengths and flaws from different perspectives. Prior to beginning an interview, we thanked the interviewee for his/her participation in the research. The interviewee was acquainted with a brief presentation about the interviewer, the research project, and its objectives, and he/she was also given a paper with a short summary of the research project. The interviewee was informed about the confidentiality and anonymity of the information collected. We also offered to send the main results of the investigation, when completed, to the interviewee's e-mail. Interviewees were asked for permission to record the interview and were asked for verbal consent for participation in the interview as a whole. All interviews were authorised and followed up by a hospital manager.

The choice of participants was made using a purposive and snowball sampling technique. With a purposive sample, it was possible to obtain the opinions of the target population. Through a snowball technique, though with a small sample size, existing participants recruited future participants from among their acquaintances and colleagues in EDs. Participants who were managers/administrators and health professionals had different levels of experience and different types of responsibility, which allowed us to obtain different opinions concerning the situation in EDs.

Interview guides were developed for two professional categories: managers/administrators and health professionals. In-depth, semi-structured interviews consisted of seven to eight analytical dimensions, with some differentiation adapted to each of the target audiences interviewed:

- 1) The 'presentation' part included thanking the interviewee and a brief presentation about the interviewer, the research project, and its objectives (the interviewee was also given a brief, written summary of the research project). Participants were assured of the confidentiality and

anonymity of the information collected. They were asked for permission to record the interview.

2) The ‘overall perception’ part was aimed at identifying how an emergency service works, the strengths and weaknesses of the ED in the hospital, and the main difficulties and challenges in EDs.

3) The ‘patient circuit’ part concerned determining the circuit that a patient follows from his/her arrival in the ED until departure, which consists of identifying the professionals with whom the patient interacts during his/her passage through the ED, determining which moments pose the main constraints or difficulties for patients during their passage through the ED, and identifying the most critical points of the circuit and opportunities for improvement.

4) The ‘patient satisfaction – determinants’ part addressed aspects that may influence patient satisfaction in the ED in positive or negative ways.

5) The ‘critical incidents’ part was aimed at identifying some specific situations in the ED where patients had a particularly positive or a particularly negative experience.

6) The ‘evolution’ part concerned comparing the current situation of emergency services with several years ago to see if the situation has improved, deteriorated, or remained the same and which aspects have evolved more positively or more negatively.

7) The ‘suggestions’ part was included to enrich the interviews by asking for participants’ personal suggestions to improve satisfaction in ED.

8) The ‘comments’ part was provided to obtain other comments that the interviewees wished to offer that could be useful to this investigation.

The average time of each interview was 30 minutes, excluding the presentation portion. All interviews were audio-recorded, transcribed, and analysed. Participants were assured that their responses would be kept anonymous. The information obtained was used to develop the architecture and content for the questionnaire, to identify the essence and relationships of the issues in question, to understand the situation in EDs better, to identify problems in EDs, and to obtain additional information about and new insights into the aspects of ED listed above, thus providing a solid base for the quantitative phase of the research. This allowed a more profound understanding of the scientific area and the determination of the research-survey design, the data collection method, and the question-building process.

Emergency services – overall perception

After a brief presentation on the aim of the research, the next part of the interview involved defining the participants’ overall perceptions about their EDs. In this section, they were asked about how an emergency service works, what strengths and weaknesses the ED has, and what the main difficulties/challenges are that they face in the ED.

First, participants noted the importance of having a Manchester Triage System, which was used in every hospital under investigation. Administrator A, from the public-private hospital, stated that the hospital has three different emergency levels and divides the circuit into internal and external circuits. A colour determines whether the patient is directed to an internal or an external circuit. An internal circuit

implies a direct entrance into the premises for those who have yellow, red (these patients enter a resuscitation room directly), or orange colours, while an external circuit implies a wait outside with calls to medical offices for those who have blue or green. A normal circuit implies coming to an admission post and being referred to the waiting room, where an average waiting time for triage is five to seven minutes. Nurse A, from the public-private hospital, described different triage posts according to priority and the colour assigned and noted that the hospital where Nurse A works uses the ticket call system. All patients have their own waiting room, in which they wait for a call. Patients who are bedridden or have priorities above yellow stay in specific areas under observation with nursing and care surveillance. Those who enter the circuit directly into a resuscitation room are often contacted in advance through the Urgent Patients Guidance Centre (CODU); there is a resuscitation team waiting with direct entrance.

Many hospitals try to segregate patients assigned blue and green into a different circuit in order to avoid contaminating the circuit of yellows and oranges as much as possible. This has already been done in public-private hospitals, and most public hospitals have started doing so, as well. Doctor A, from the same public-private hospital, discussed the segregation of patients assigned green, who wait in one room, and those assigned yellow, who wait in another room, and described places where the greens and blues are kept apart. Patients classified with yellow who enter on a stretcher in ambulatory care offices go inside, as do those assigned orange, who enter directly inside. This segregation has a positive influence in terms of management and organisation:

I think it is useful in terms of management and even in the perception of patients because, often, when there was not this separation, even in different waiting rooms, they did not understand why the green was being called ahead of the yellow or the other way round, so it is easier. And, in addition, it also distributes people; they are not accumulated in a single waiting room. Also, I can tell you that there is no such pressure, even in the waiting rooms.¹

Doctor A, public-private hospital

In private hospitals, the situation is slightly different in terms of the emergency service itself, as they have two emergency services. Doctor B, from the private hospital, stated:

Here, we have two emergency services running simultaneously. We have this one here in the clinical centre, which runs every day of the week, from 8 am to 10 pm, from Monday to Friday, and on weekends from 8 am to 8 pm. And then we have the emergency service at the hospital, which runs 24 hours a day.²

Doctor B, private hospital

The first service mentioned is less associated with emergencies, as the conditions are less urgent. Nurse B, from the same private hospital, emphasised:

Here, we do not characterise ourselves as an emergency, but we are not far from it. An emergency service

is not what we have here now. What we have is a permanent care service, i.e., the conditions are not so urgent as, for example, in a real emergency room.³

Nurse B, private hospital

The lower urgency of the conditions may explain how the colours are assigned to patients in the screening protocol:

We have different colours, but the colours that we attribute are only computer colours that we see on the computer and only use in the computer. We do not give bracelets to patients, as there are in public hospitals. No, because the patient is taken care of quickly. Even in large flows, one can wait just another five minutes.⁴

Nurse B, private hospital

In terms of different EDs and some of the differences discussed above, there was a wide range of weaknesses, as the same factor could be a weakness in one ED and a strength in another for various reasons. The most frequently mentioned weaknesses were waiting time and lack of space.

One factor that can contribute to the problem of waiting time is an excessive number of non-urgent patients in EDs: ‘We spend time with non-urgent patients, while this time could be diverted to urgent patients,’⁵ stated Doctor A, who was from the public-private hospital. Administrator D, from a public hospital, also noted the problem of non-urgent patients, which constitute the majority:

Over 50% of people who go to emergency don’t need to go to emergency. We have Manchester screening, which has this type of colours ... and about 70% of patients are resolved cases, so they don’t have any reason to go to the ED.⁶

Administrator D, public hospital

Nurse C, from the other public hospital, stated that the percentage of non-urgent patients they see was around 70%. Administrator C, from the same public hospital, also mentioned the problem of non-urgent patients, which exists in many hospitals. Administrator C offered some suggestions about this situation:

Patients have to be aware that the emergency department is for treating acute patients. We have a volume of patients in terms of screening – for example, those patients who are less acute – that alone constitutes around 50% of the number of admissions that we have in the ED, and it should be primary care patients first. ... Often, they appear in the emergency department and are making noise. Why? Because sometimes we have peaks of influx, and these patients are often waiting three hours to be seen, and with the condition that they have, they should not go to the ED, but they are creating more conflict here, while they should follow the normal way – that is, to go to primary care, which in this case is good for everyone.⁷

Administrator C, public hospital

Doctor D and Nurse D, from a public hospital, explained this problem: ‘Many go to ED because it is much faster than going to the queue in the morning to see a family doctor,’⁸ stated Doctor D. Another reason is the number of patients in the ED in general, which varies among the hospitals, as does the percentage of urgent patients. Doctor C, from the other public hospital, stated:

Sometimes, in certain cases, it is hard to control the number of patients because we can get 150 patients within an hour. After all this, from screening until attendance, it is hard to filter the patients. ... We have a lot of very urgent patients.⁹

Doctor C, public hospital

Administrator D, from a public hospital, supposed that having more doctors could help solve the problem of waiting time, as there is a lack of them in ED. In reality, it is quite difficult to predict the number of admissions in the ED, which, from time to time, obviously creates a longer waiting time than expected. Administrator C, from the other public hospital, noted: ‘We have periods of the day when the number of admissions is so big that we have waiting times a bit longer than what it should be’.¹⁰

The problem of space may also affect hospitalisation in the ED. Doctor A, from the public-private hospital, pointed out:

Another fact has to do with constraints that we have in hospitalisations. We have permanently patients hospitalised in the ED. Now less, but we still have around 20 patients hospitalised in the ER because there is no space. Patients stay accumulated in a certain room where they are being observed, where the clinical decision is made, where others are being treated.¹¹

Doctor A, public-private hospital

Evidently, many EDs face the problem of space. Doctor C, from a public hospital, indicated: ‘In that, I think we are similar to all emergency departments, ... emergency departments in Portugal, I think, still work for many patients as the only healthcare they have access to.’¹² Lack of space may provoke another problem that is quite common for EDs: a lack of privacy, as Administrator D, who is from a public hospital, noted.

Other weaknesses mentioned were the physical conditions in the ED and a lack of information and communication, which can be an additional problem in EDs. In some cases, it even prompts complaints, as Administrator D, who was from a public hospital, mentioned. In terms of private hospitals, the weakness concerned the concrete specialty:

For example, ophthalmology, we do not have at the weekend. We do not have it because it is not justified to have. The number of patients who have ophthalmological problems is not so great that it would be justified to have it.¹³

Doctor B, private hospital

Other weaknesses relate to working conditions. These concern both the level of comfort in the hospital (for example, physical and space conditions) where health professionals work and the lack of some materials in the ED, for example, that may influence the quality of work:

We try to rest a little bit, which is always ... the point. We are here 24 hours. No one thinks that we will be working 24 hours continuously, do they? What we need is not more rest; we need a place where we can stay, rest a little bit. Not in the chair like this one, where we are sitting. ... Sometimes, in order to work, we lack this or that thing. ... They are small things but sometimes make a big difference.¹⁴

Doctor D, public hospital

Among the weak points is the so-called discharge note that patients normally receive upon leaving the ED. However, patients do not always receive this in written form in every hospital:

Many patients leave without a discharge note. We don't do what is called a discharge note. Sometimes they take the analysis and ultrasound that we do, and prescriptions ... but nothing like in a written form. I think it is a failure that we have.¹⁵

Doctor D, public hospital

Similarly, when a patient does not bring anything in a written form from, for example, a health centre, this can create additional problems for ED professionals:

Although nowadays with the health platform, we can already see the exams, the family doctor can go by the computer to see exams that were done. It helps a little bit. ... But sometimes patients don't bring anything written from the health centre. They bring a little note that says three letters.¹⁶

Doctor D, public hospital

Another interesting weak point that Doctor C, from a public hospital, mentioned was the lack of economic resources. Having many patients who are undocumented or below the poverty line can create extra pressure in the ED:

Often, patients do not have any family doctor, no healthcare, so when they arrive here, they already have very advanced stages of their diseases. ... We have to hospitalise a high percentage of patients. ... On the other hand, we often have a high percentage of so-called social cases, with social difficulty, rather than clinical cases.¹⁷

Doctor C, public hospital

In the opinion of Nurse C, from the same public hospital, the problem is an extreme increase in this population:

This ED covers a population, which was already a large number, a population often with social needs. Unfortunately, we have some situations that are awaiting social position, so patients sometimes stay here without having a discharge, and this goes against the meaning of ED itself. So an observation service (SO) should have an admitted patient in the space of 48 hours and be able to transfer him/her after stabilisation, which does not happen. And so we have prolonged hospitalisations in observation service, lack of space, and conditions are not the best.¹⁸

Nurse C, public hospital

The most common strengths in EDs were human resources, personnel, staff (doctors, nurses, and auxiliaries), teamwork, the availability of support specialties, the presence of exams and tests, the working environment, doctor/patient and interpersonal relationships, and the location of the hospital.

Human resources in EDs are an important part of effective work and contribute to the formation of a high-quality team that provides a high quality of service. The age of ED professionals in a team ultimately matters. Doctor D, from a public hospital, stressed: 'In my team, I'm the oldest. I am 50. All the others are all younger than me. I think this is the strong point.'¹⁹ In the other public hospital, the situation is similar, but Doctor C mentioned an important issue that concerns a human element and some points concerning professionals' principles and values:

Older doctors have to reform recently, and more and more young doctors come with spectacular clinical knowledge, clinically very good, but who lack sometimes this human part. ... There are those who can understand computers, exams, analysis well, but at the same time do not know how to talk to a patient. ... Often, it is said that, in theory, in order to pursue medicine, people have to possess an average of 19 values, being very educated people in their principles.²⁰

Doctor C, public hospital

Some of the interviewees – for example, those in the public-private hospital – noted that they had succeeded in building a fixed team of doctors, nurses, and auxiliaries dedicated to the ED. This was also true in one of the public hospitals. Another issue concerned the private hospital, where they succeeded in stretching the team somewhat when necessary.

According to Nurse B, from the private hospital, both financial conditions and having adequate space can contribute to high-quality care:

The quality of care is good because we have adequate space for our needs. We know that every time more resources are adapted, not only the needs but the financial conditions – and at the moment, Portugal is going through a problem in terms of financial conditions. ... We do not have this limitation here.²¹

Nurse B, private hospital

The availability of support specialties differs, but at the same time, the possibility of having more support specialties makes it possible to solve situations of different origins. From the patient's perspective, this makes the ED look more suitable in case of various health states:

Our strong point is the fact that we now have support specialties. We make many transfers to Lisbon, to hospitals. We are an end-of-line hospital. If we do not have a specialty, we have to send the patient away. Now, most of the situations we can solve here.²²

Doctor A, public-private hospital

An interesting fact is that waiting time in some EDs is not considered a major problem, and with official figures that are low enough, it may even be referred to as a strong point, as in the case of one public hospital. In the private hospital, Nurse B, Administrator B, and Doctor B all mentioned that patients have practically no waiting time. Among other strengths, Doctor B, from the private hospital, noted comfort measures, ease in administering complementary diagnostic tests, the way patients are accompanied by an auxiliary, hospitalisation service, and the quality of service:

Of course, we try to make it so that a patient who has a green colour waits maximum 20 minutes. Sometimes, this is not possible, especially in periods of greater influx, but our maximum waiting time, for example, this winter, was about an hour, which is not much.²³

Doctor B, private hospital

Administrator B, from the private hospital, noted some additional issues that people value, including readiness (of services), organisation, and physical conditions.

One of the main difficulties that professionals face in performing their roles was having an appropriate, suitable space in order to rest, along with physical conditions that provide comfortable rest at night when they have time for it. Another difficulty concerned motivating teams and professionals, as well as managing expectations. Nurse A, from the public-private hospital, stressed an increase of expectations both from the population and from the teams themselves. Doctor C, from a public hospital, also expressed the following concern about expectations: 'I think people have many expectations that later, when expectations are not met, lead to some friction, and eventually, after that, things may get worse.'²⁴

This leads to the realisation that meeting these expectations has become harder, and more resources and efforts are needed to meet them from both sides. In this case, human resources management is useful to correctly adapt and adjust. Administrator B, from the private hospital, mentioned this in connection with the unpredictability in the number of patient visits per day, which necessitates an adequate team size.

Another issue concerns the difficulty with hospitalisation in some hospitals. For the private

hospital in the study, this difficulty was connected to the distance from the hospital. Doctor D and Nurse D, from a public hospital, emphasised the same difficulty with regard to hospitalisation:

We sometimes have those patients here – for example, at 21:00 pm, we have to call to another hospital saying: ‘I have here one patient with this and that, so I will send the patient’. ... The patient goes; at 03:00 am he comes back. Then, the next day, I have to find the place to put the patient ... so I have to send him to another hospital.²⁵

Doctor D, public hospital

Administrator A, from the public-private hospital, noted that, although all information is available in the computer system, it is still somewhat challenging to use a computer system that is sometimes unclear and is not robust.

One common difficulty is devoting some time to family members and providing explanations and empathy. Normally, those who give information to family members are nurses and doctors. In the ED, with its framework of stress and busyness, it is difficult to manage time, and the issue of time management arises:

By the excessive number of patients that we have, in my personal experience, my greatest difficulty is to spend some quality time with family members. We are with patients – we are here in this acute situation with patients, but then the family at the visit time ... We cannot be right there with them, explain to them everything that is happening, give support, and many families need it because entering in there is scary. They see monitors and see the unstable patient, and we often have ventilated patients.²⁶

Nurse C, public hospital

Doctor C, from a public hospital, noted that it is not always possible to allow all patients’ relatives and family members to be close to them due to the amount of patients in the ED. On the subject of providing information and a visit period, Nurse C, from the same public hospital, offered this idea:

What seems to me an idea some hospitals have tried to implement is to have a period of the day, an hour, where there is a doctor or nurse ... dedicated to providing information to those who go to services. ... If you go to an observation service (SO), there is family there, and during this first visit period, nurses are responsible for the patient ... and give some information about the patient’s condition. Then, in the second visit period of the day, from 19:00, there are doctors who give this information.²⁷

Nurse C, public hospital

One important question concerns the use of supplies and resources in the ED. This refers to an administrative part of ED and was a concern that Administrator D, from a public hospital, shared:

As a manager, I have a great concern with what is spent and consumed in the emergency department because the emergency department, in terms of consumables, in terms of human resources, in terms of equipment, is a service that requires everything to always be available. ... It could be very good to have more clinical standardisation, more protocols that help to standardise the best procedures, not only in clinical terms, but also in terms of management costs.²⁸

Administrator D, public hospital

Emergency services – patient circuit

The third part of the interview concerned the patient circuit in general. Important issues emerged from this section, referring mainly to the description of the patient circuit in the ED, patients' interactions with professionals during their passage through the ED, the detection of the main difficulties/constraints that patients face during their passage through the ED, and the most critical points of the circuit and opportunities for improvement.

The greatest interest was the main difficulties/constraints that patients face in the ED. Interviewees mentioned issues that were somewhat similar to those in previous parts but from a different perspective; these included movement routes and signage appropriate for older people, distance, waiting time, privacy, space, communication, and payment.

In some cases, older people in the ED face difficulties that young people can avoid that are related to such issues as movement routes and signage. Administrator A, from the public-private hospital, noted this:

People can be completely independent, but there are old people. ... We have heavy doors, and the paths are long. Although we have some mechanisms for wheelchairs, there may be some difficult situations. ... Concerning signage, I think our fixed signage is good, but we work with screens and with ticket call, and for a lot of old people, this is complicated.²⁹

Administrator A, public-private hospital

Doctor A, from the same public-private hospital, also mentioned the distance inside the hospital, which can be a problem for older people. For example, in order to have an X-ray, a person may have a long route and heavy doors to push.

Another problem that arises with older patients is that, sometimes, they continue staying in the ED due to family or social reasons that prevent them from returning home. Moreover, it is quite rare today for a person to die at home. Doctor C, from a public hospital, mentioned this:

There are many patients over 80, over 90 years old. ... What happens sometimes is that people say: 'I cannot bring home my father because my father does not walk and formerly walked,' or 'I cannot take home my mother because I cannot have people at home with her 24 hours a day. I have to work, and my

husband has to work. How do I manage?’ So it is the hospital that has this burden of solving the problem.³⁰

Doctor C, public hospital

An excessive waiting time is the most frequently mentioned problem that patients face in ED. In public hospitals, this problem is normally much more serious than in private ones. Different solutions were proposed to solve it, including an increase in the number of doctors to observe patients and more human resources in general to reduce waiting time. The problem is currently important in many EDs. Nurse C, from a public hospital, said:

If we have a medicine counter with 40 patients, and we have 10 doctors, well, okay. If we have 10 doctors with 120 patients who come, which is the case, we have a waiting time of more than eight hours here. And sometimes we have an urgent priority that should have a maximum of three hours and has eight hours of waiting.³¹

Nurse C, public hospital

Having many patients leads to a lack of privacy because of the lack of space. For example, Doctor A, from the public-private hospital, said:

We feel a lack of cabinets/rooms to create privacy, even for outpatients. ... Another thing depends more on the administration to negotiate spaces inside. Inside we cannot have more than 10 to 12 spaces with curtains. Even spaces that are in there divided by curtains could be narrower because two stretchers fit in each space. But what they established was that they could only have 10 to 12 spaces out there, and they stayed divided like that because they do not allow more divisions. ... Patients end up accumulated there without any privacy, and this was something that would be easy to solve if they allowed to make more divisions in spaces.³²

Doctor A, public-private hospital

The question of privacy becomes even more important if a person who comes to the ED is famous and has to be sheltered from the general population in the ED. Doctor D and Nurse D, from a public hospital, pointed this out.

Other difficulties often arise because of communication failures and the form of organisation, which can cause misunderstandings at different levels of the ED.

In a private hospital, according to Doctor B, who works in one, sometimes, patients may complain about payment because it is a private service, and the price or user fee differs for the same service in a public hospital or a public-private hospital. Complaints are monitored in private hospitals, for example, through the communication system by telephone, as Nurse B noted.

Regarding opportunities for improvement, the main emphasis was communication with family members, information provision, connection to health centres, space, and waiting time.

With waiting time and space issues, there are always opportunities for improvement. Another issue is communication with family members and information provision during the circuit in the ED. Doctor C, from a public hospital, identified some steps for improving information provision:

If people know, are informed about their waiting time ... how long the exams take, how long the circuits take; when there are many circuits, the waiting time is accumulating, and therefore the lack of information about all these steps is what we need to fill up and to give to patients.³³

Doctor C, public hospital

Doctor C, from a public hospital, mentioned a closer connection to health centres, for example, where examinations or tests could be performed. In general, there are always opportunities for improvement in the quality of patient care, as Doctor B, from the private hospital, correctly noted.

Patient satisfaction – determinants

The fourth part of the interview was aimed at detecting the most important determinants of patient satisfaction in the ED. The questions mainly concerned aspects that negatively or positively influence patient satisfaction.

Among aspects that influence patient satisfaction, participants mentioned more or less the same factors specified and discussed before: waiting time, communication, information provision, privacy, cleanliness, friendliness, sympathy, the way to approach people, behaviour, and interpersonal human relationships (e.g., knowing how to talk, creating empathy, knowing how to give bad news, and knowing how to interact), price, user fee, and the technical competence of each professional.

When new patients arrive, it is important to make a positive impression; according to Administrator B, from the private hospital, this creates a high possibility that they will return for other services. In this case, behaviour, interpersonal relationships, the way to approach people, and the way patients are taken care of form this human element, which plays an important role in terms of patient satisfaction, especially in Portugal, where people appreciate direct eye contact.

Doctor A, from the public-private hospital, said that staff training can contribute to this positive human relationship. Doctor C, from a public hospital, mentioned the importance of respect, affection, support, and the way patients are treated. Among other aspects that influence patient satisfaction, Administrator B, from the private hospital, specified fast service, communication, and information provided on the level of care and steps that follow; other important factors were waiting rooms with good conditions and contact between health professionals. He also agreed that training can contribute to all of the factors mentioned above, and he added some other issues: demanding criteria in the hiring and employment of professionals, professionals' alignment with the management's strategy, monitoring service levels, providing this information to professionals themselves (for example, giving feedback,

monitoring some of the services, and involving health professionals in the results of their own service), and investments.

According to Nurse C, from a public hospital, two other aspects that may influence patient satisfaction are hospitalisation in an observation service and support given to family members.

Doctor D and Nurse D, from the public hospital, mentioned an interesting aspect about the availability of tests that can influence patient satisfaction. Sometimes professionals in the ED do not do what patients want or believe they need; therefore, they have to explain that they do not have indications for those services. To some extent, this may influence the patients' satisfaction.

Among the aspects that negatively influence patient satisfaction, Administrator B, from the private hospital, mentioned waiting time, disorganisation, incorrect information, and expectations in terms of service that might be poorly managed with patients. To address this, he suggested an accurate explanation of the problem as a solution. This can be useful and can help avoid a negative influence on satisfaction. Administrator B said: 'If we give an explanation to a patient, and engage him/her when there is some problem, if we, as an institution, take the initiative to explain to people the problem, they can accept it and even collaborate, too'.³⁴ The most common and frequently encountered factor that negatively influences patients' satisfaction is waiting time. According to Nurse B, from the private hospital, this also has a solution: the adequate adaptation of human resources:

It is not always the same team with the same number of people. We have teams adapted to realities; we have also homogenised teams. ... We channel resources depending on the needs of the service and also homogenise the team, considering that not everyone is the same, not everyone has the same pace of work, not everyone has the same capabilities, and not everyone executes the same thing in the same way.³⁵

Nurse B, private hospital

Another issue that can complicate patients' experiences in the ED and influence it in a negative way is difficulty with communication. Communication barriers may be due to different nationalities or language barriers. The ability to accompany the patient in the ED is also important for patient satisfaction and may negatively influence it and provoke complaints. The last issue that may influence patient satisfaction concerns user fees. Interestingly, in one of the hospitals interviewed, in one month, they had a tolerance of 77% of debt, according to Administrator A, from the public-private hospital. This seems to be an important determinant of patient satisfaction that can influence it in a negative way.

Critical incidents

The fifth part of the interview concerned critical incidents. Health professionals were asked about positive or negative experiences that patients had in the ED. Sometimes, these situations had an impact that led to positive or negative consequences and health outcomes. Few examples were given. Doctor D, from a public hospital, shared one case:

There was a patient who fell from a wing of an airplane and had an epileptic seizure. He hid this fall, hid the epileptic seizure, and that there was an underlying trauma. ... Being in a work situation, he was really forbidden to climb the aircraft wing, so he hid. After that, things ended badly. It ended in the death of the patient.³⁶

Doctor D, public hospital

This is an example of a real situation of a patient's fault and an example of how information that is hidden from medical personnel can lead to unpleasant circumstances and even death. It reveals important issues of information distribution, communication, and sincerity in the ED from the patient's side, which are an integral part of good health outcomes.

Despite some negative experiences, examples of positive health outcomes were also given. Doctor A, from the public-private hospital, shared a case of a positive experience:

An old man who came here ... suddenly could not swallow. Could not swallow anything, including saliva. He had gone to the private hospital in Lisbon the day before; they had made him some prescriptions. ... He didn't feel better and came here. I saw the old man. He was at age 92, but perfectly autonomous. He came alone, on foot. Then, I asked gastro to do an endoscopy. He had an endoscopy, and a foreign body was found. He had swallowed meat, which had remained there, so we took it out, and the old man almost kissed me in the end. He felt a great relief. I gave him a glass of water just to test, and he drank it with satisfaction.³⁷

Doctor A, public-private hospital

This situation may not seem extraordinary, but at the same time, it exemplifies great satisfaction and gratitude. ED professionals directly contribute to this satisfaction and gratitude; therefore, it is crucial to provide them with appropriate working conditions. In an attempt to lighten the stressful atmosphere in EDs, different approaches have been used, such as training programs, workshops for mutual support, debriefing practice, and control of working hours. This may help avoid or reduce negative cases in EDs and contribute to a better working environment and greater satisfaction.

Evolution

The sixth part of the interview concerned the evolution of emergency services. It was interesting to see whether the situation had improved, deteriorated, or remained the same globally, and to investigate aspects that may have evolved in negative or positive ways. Almost all of the interviewees stated that the situation had improved or at least stayed more or less the same globally. However, what they mentioned differed from hospital to hospital. Administrator D, from a public hospital, noted that, according to her overview, emergency services have improved adequately in several well-known public hospitals. However, Doctor D and Nurse D, from the same public hospital, stated that the situation had stayed more or less the same. Administrator B, from the private hospital, mentioned some aspects that concerned greater time availability. Doctor A, from the public-private hospital, said that the situation had become

better at all levels, in terms of improved facilities, an increased number of doctors in care and with greater differentiation, and having four internists on average (i.e., four internists per day). In the other public hospital, Doctor C emphasised the improved situation in terms of facilities and noted that a computer system had helped significantly and provided a major advantage in terms of access to data queries and health platform data in general.

Nurse C, from the same public hospital, also mentioned some positive aspects: improvements in working conditions and facilities, training, and teams that influenced and changed the quality of work. However, Administrator C, from the same hospital, discussed some problems concerning legislative factors:

We cannot hire as many professionals as we want, and four years ago, for example, we could. That is, we sometimes have more difficulties in finding doctors because we are confined to those who are already in the hospital. That is, we cannot hire one doctor, or two doctors, or three doctors to come to work here for one month. These processes are time consuming. Hiring by an employment contract today is almost made through accredited public tenders for doctors. I am talking mainly about doctors, but with other professionals, it is the same thing, though not through accredited public tenders. Still, there must be an approval of the Ministry of Health and even of the Ministry of Finance, as well.³⁸

Administrator C, public hospital

Suggestions and comments

The seventh and eighth parts of the interviews concerned suggestions for improving satisfaction and comments that participants could provide if they had something more to say that could be useful for this investigation.

Conclusion

All participants shared information about different problems and various advantages of their ED, and they gave a solid base for constructing a high-quality structure for the quantitative phase of research. Some of the strong and weak points were quite similar, while some of them differed, depending on the type of hospital or on the specialty and experience of the participant. First, the Manchester Triage System, with its distribution of colour reflecting the patient's acuity, was identified as an integral part of every hospital. Second, the main problem was identified as a high level of non-urgent patients that may create overcrowding in ED and cause long waiting times. Third, working conditions, communication, and privacy may influence performance and quality in the ED, and ED professionals play a crucial role in forming a collaborative team. Fourth, the availability of tests and hospitalisation may sometimes be problematic due to the distances involved and the lack of space. All of the issues ED professionals mentioned in this study must be monitored and analysed in order to determine possibilities for improvement and contribute to an effective evolution of emergency service. The information analysed helped reveal new, problematic areas in EDs and facilitate an understanding of the functioning of emergency services from the inside and as a whole system.

The list of citations in Portuguese

¹ [...Eu acho que é útil em termos de gestão e até na perceção dos doentes porque muitas vezes, quando não havia esta separação, mesmo em salas de espera diferentes, eles não entendiam porque é que o verde estava a ser chamado à frente do amarelo ou ao contrário, portanto, é mais fácil. E, para além disso, também distribui as pessoas, não estão acumuladas numa única sala de espera. Também (imperceptível) lhe posso dizer que não há aquela pressão, mesmo nas salas de espera.]

² [...Nós aqui temos dois serviços de urgência a funcionar em simultâneo. Temos este aqui no centro clínico, que funciona todos os dias da semana, das 8h da manhã até às 10 h da noite, de segunda a sexta e, aos fins de semana, das 8h da manhã até às 8h da noite. E depois temos o serviço de urgência no Hospital, que funciona 24 horas por dia...]

³ [...Nós aqui não nos caracterizamos por ser propriamente uma urgência, mas também não andamos muito longe, não é? Até porque um serviço de urgência não é o que a gente tem aqui neste momento, aqui neste momento o que a gente tem é um serviço de atendimento permanente, ou seja, as patologias não são tão emergentes, ou muito urgentes como nas urgências, ditas urgências...]

⁴ [...Temos cores diferentes, mas as cores que nós atribuímos são cores só informáticas que nós vemos no computador e só utilizamos no computador, não damos pulseiras aos doentes como existe nos hospitais públicos. Não, porque o doente, como eu disse, é rapidamente atendido, eu creio que é, se ele é logo, logo intervencionado e atendido ou se ele pode eventualmente em fluxos grandes esperar mais 5 minutos...]

⁵ [...E, depois, perdermos tempo, gastarmos tempo com doentes não urgentes e que podiam estar a ser desviados para os doentes urgentes...]

⁶ [...Mais de 50% das pessoas que vão à urgência não precisavam de ir à urgência. Nós temos triagem Manchester que tem este tipo de cores de Manchester ... e cerca de 70% dos doentes são resolvidos, portanto estão totalmente sem necessidade de recorrer ao serviço de urgência, não é...]

⁷ [...Eu gostava que os utentes tivessem consciência que uma urgência é para tratar doentes agudos. Nós temos um volume de doentes a nível da triagem, são doentes menos graves que já passa os 50% o n.º de admissões que temos na urgência e deveriam ser doentes que os cuidados primários deviam dar resposta e que não dão ... Muitas vezes aparecem aqui na nossa urgência e esses é que fazem o ruído. Porquê? Porque porventura temos picos de afluência e esses doentes como estão muitas vezes 3 horas à espera para serem vistos, apesar deles próprios, a patologia que eles têm não deveriam ir à urgência, mas são os que criam aqui mais conflito e aquilo que eu gostava era que esses doentes não viessem ao serviço de urgência e seguissem o caminho normal, ou seja, que fossem aos cuidados primários, que neste caso era bom para todos.]

⁸ [...Como eu disse há pouco, vamos à urgência que é muito mais rápido do que ir para a fila de manhã para o médico de família...]

⁹ [...O n.º de utentes é francamente, não se consegue controlar em determinadas ocasiões, porque numa hora são capazes de entrar 150 doentes. Depois isto tudo, desde a triagem até ao atendimento não consegue, não se consegue escoar doentes ... Temos muitos doentes muito graves.]

¹⁰ [...Temos períodos do dia em que o n.º de admissões é de tal maneira grande que temos tempos de espera um pouco maior do que aquilo que deveria ser admissível.]

¹¹ [...Outro facto tem a ver com os constrangimentos que temos nos internamentos, temos permanentemente doentes internados na Urgência. Agora menos, mas ainda temos à volta de 20 doentes internados na Urgência porque não há espaço nos internamentos e isso também, como é fácil calcular, os doentes acumulam-se todos numa determinada sala, onde estão a ser observados, onde se faz a decisão clínica, outros estão a fazer tratamento...]

¹² [...Mas isso, nisso penso que somos iguais a todas as urgências, ... as urgências em Portugal eu acho que a urgência ainda funciona muito para muitos doentes como os únicos cuidados de saúde a que eles acedem.]

¹³ [...Por exemplo, Oftalmologia não temos ao fim de semana. Não temos porque não se justifica ter, o número de doentes que têm problemas oftalmológicos não são assim tão grandes que se justificasse ter um colega...]

¹⁴ [...Nós tentamos descansar um bocadinho, que é sempre ... é o ponto, nós temos 24 horas ali, ninguém pensa que nós vamos estar as 24 horas sempre a trabalhar, não é? Precisamos, não é mais descanso, precisamos de sítio para podermos estar um bocadinho. Não é numa cadeira igual a esta, em que nós estamos um bocadinho sentados, pronto ... A gente, para trabalhar falta ou isto, ou faltar-nos aquilo, ahm ... São pequenas coisas mas que às vezes fazem uma grande diferença...]

¹⁵ [...Muitos doentes saem sem, ahm, nós não fazemos o que se chama uma nota de alta. O que é que aconteceu, leva às vezes as análises e a ecografia que nós fizemos, e a receita ... mas não leva nada assim escrito. Eu penso que é uma falha que nós temos...]

¹⁶ [...Embora hoje em dia com a plataforma da saúde já se conseguem ver os exames, o médico de família já consegue ir pelo computador ver os exames que fez. Já ajuda um bocadinho ... Como às vezes do centro de saúde também não traz nada escrito, traz uma cartinha a dizer 3 letras...]

¹⁷ [...Ahm, muitas vezes não têm nenhum médico de família, cuidados de saúde nenhuns e, portanto, quando chegam aqui chegam em fases muito avançadas das suas doenças, não é? ... Temos internar uma percentagem de doentes muito elevada ... E por outro lado temos muitas vezes casos sociais, uma percentagem muito grande de dificuldade social, mais do que casos clínicos.]

¹⁸ [...Esta urgência abrange uma população, para além de ser em grande número é uma população muitas vezes com carências sociais, ahm, infelizmente temos algumas situações que estão a aguardar posição social, portanto, os utentes ficam aqui sem ter alta e, e isto vai contra a própria definição de urgência, portanto, um serviço de observação deveria ter um utente internado num espaço de 48 horas e conseguir-se transferir depois para uma medicina após estabilização do quadro, o que não acontece, temos internamentos em SO prolongados, falta de vagas, temos muitos doentes internados e as condições não são as melhores.]

¹⁹ [...Eu na minha equipa sou o mais velho, tenho 50 anos, os outros todos são todos mais novos que eu. Ahm, eu penso que esse é o ponto forte...]

²⁰ [...Os médicos mais velhos estão-se a reformar, e temos uma camada de jovens muito jovens, com conhecimentos clínicos espetaculares, clinicamente muito bons a quem falta depois às vezes esta parte, a parte humana ... São pessoas que sabem ver maravilhosamente bem computadores, exames, análises, mas não sabem falar com um doente ... Muitas vezes se fala que, isto em teoria, que para vir para medicina hoje em dia têm que ser pessoas com média de 19 valores, sobretudo que em condições normais são pessoas muito cultas nos seus princípios...]

²¹ [...A qualidade do atendimento é boa porque tem um espaço adequado às necessidades, nós sabemos que cada vez mais os recursos são muito adaptados, não só às necessidades mas às condições financeiras e neste momento Portugal atravessa uma problemática em termos de condições financeiras ... Nós aqui não temos essa limitação...]

²² [...Ponto forte é o facto de termos agora as especialidades de apoio, não é? Fazemos muitas transferências para Lisboa, não é, para os hospitais, nós somos um hospital de fim de linha, não é, não temos especialidade temos de mandar embora. Agora, a maior parte das situações conseguimos resolvê-las cá...]

²³ [...Obviamente, tentamos que, no máximo dos máximos, um doente verde tenha uma espera de 20 minutos. Às vezes não é possível, sobretudo em períodos de maior afluência, mas o nosso tempo máximo de espera que tivemos, por exemplo este Inverno, foi de cerca de uma hora, o que não é muito...]

²⁴ [...Eu acho que as pessoas têm muitas expectativas que depois, quando não se cumprem as expectativas, ahm, leva a que haja atritos e que eventualmente depois as coisas corram pior...]

²⁵ [...Há aqueles doentes em que tão aqui, nós às 21:00 da noite estamos a telefonar, nomeadamente eu, o colega noutro hospital “Tenho aqui um doente com isto assim vou enviar o doente” ... O doente vai, às 03:00 da manhã devolve-me o doente, depois eu no dia seguinte tenho que arranjar um sítio para pôr o doente ... tenho que o mandar para outro lado...]

²⁶ [...Pelo n.º de doentes que temos em excesso. Ahm, no meu ponto de vista, na minha experiência pessoal a minha maior dificuldade é conseguir estar com algum tempo de qualidade com os familiares. Estamos com os doentes, estamos ali naquela situação aguda com os doentes mas depois os familiares na hora da visita ... Não nos é possível estar ao pé deles, explicar-lhe tudo aquilo que se passa, darmos algum apoio e muitos familiares precisam porque entrar ali dentro é assustador, ver monitores e ver o doente instável, muitas vezes temos doentes ventilados...]

²⁷ [...Há um, aquilo que me parece uma ideia, alguns hospitais têm tentado implementar, que é ter um período do dia, uma hora, em que há um médico ou enfermeiro ... está dedicado a prestar informações a quem se dirige aos serviços ... Portanto, se vocês forem ao SO estão lá os familiares e neste primeiro período de visita são os enfermeiros responsáveis pelo doente ... que dão algumas informações sobre o estado do doente. Ahm, e depois no segundo período do dia na visita das 19:00 é, já são os médicos, já são os médicos que dão essas informações, portanto.]

²⁸ [...Como gestora hospitalar eu tenho uma grande preocupação com aquilo que se gasta e que se consome no serviço de urgência porque o serviço de urgência, quer em termos de consumíveis, quer em termos de recursos humanos, quer em termos de equipamento é aquele serviço que exige que esteja tudo sempre disponível ... Era muito bom que houvesse mais normalização clínica, mais protocolos que ajudassem a uniformizar os melhores procedimentos, não só em termos clínicos, como também em termos de custos de gestão.]

²⁹ [...As pessoas podem ser completamente independentes, mas são velhotes ... Temos as portas pesadas, os percursos são longos. Apesar de termos alguns mecanismos dá para ter cadeiras de rodas eh pode haver aí algumas situações ... E depois sinalética. Eu acho que a nossa sinalética fixa, eu acho que ela é boa, mas nós funcionamos com ecrãs e com o chamamento por senhas e isto para muita gente, para gente idosa, é complicado...]

³⁰ [...Temos muitos doentes com mais de 80, mais de 90 anos ... As pessoas dizem “Não levo para casa o meu pai porque o meu pai não anda e antigamente andava”, “Eu não levo para casa a minha mãe porque não consigo ter pessoas em casa com ela 24 horas/dia, tenho que trabalhar, o meu marido tem que

trabalhar, como é que eu faço? Não posso levá-lo para casa”. E portanto, é o hospital que fica com o ónus de resolver o problema que não é comum.]

³¹ [...Se tivermos um, um balcão de medicina com 40 doentes e tivermos 10 médicos, muito bem, se tivermos 10 médicos à mesma, com 120 doentes que entrem, que é o caso, temos um tempo de espera de mais de 8 horas aqui. E às vezes temos uma prioridade urgente que deveria ter o máximo de 3 horas e tem 8 horas de espera...]

³² [...Que nós sentimos é a falta de gabinetes, para criar privacidade e mesmo até para doentes de ambulatorios ... Outra coisa que eu acho que poderia tentar, mas lá está, isso depende mais da administração negociar mesmo negociar os espaços lá dentro, lá dentro não deixam ter mais do que 10/12 espaços com cortinados. Mesmo os espaços que estão lá dentro divididos por cortinados podiam ser mais estreitos porque em cada espaço cabem duas macas. Mas aquilo que estabeleceram que só podiam ter 10/12 espaços lá fora, ou não sei quê, e ficaram divididos assim porque não deixam fazer mais divisórias. ... Os doentes acabam por estar ali acumulados e sem privacidade nenhuma e isso era uma coisa que era fácil de resolver, se autorizassem a fazer mais divisões nos espaços...]

³³ [...Se as pessoas souberem, estiverem informados que vão ter aquele tempo de espera ... quanto tempo demoram os exames, quanto tempo, os circuitos, quando são muitos circuitos o tempo acumula-se, e portanto, a falta de informação sobre todos esses passos que é preciso dar...]

³⁴ [...Se a gente der uma explicação e envolver quando tá a haver um problema, algo que seja anormal, se nós explicarmos, se formos nós, instituição, a ter a iniciativa de explicar as pessoas aceitam e até colaboram também...]

³⁵ [...Não é sempre a mesma equipa com o mesmo n.º, nós temos as equipas adaptadas às realidades, quer dizer que temos as equipas também homogeneizadas ... Canalizamos os recursos consoante as necessidades do serviço e homogeneizamos também a equipa considerando que nem todos são iguais, nem todos têm o mesmo ritmo de trabalho, nem todos têm as mesmas capacidades e nem todos desempenham a mesma coisa da mesma forma...]

³⁶ [...Um doente que caiu de uma asa de um avião, teve uma crise de epilepsia, caiu e foi criado, ocultou-se esta queda, ocultou-se a crise de epilepsia, portanto, e que havia um traumatismo por trás ... Primeiro em grau de culpa do utente por ser numa situação de trabalho, ele tava proibido de subir à asa do avião, por isso escondeu. Depois as coisas acabaram mal, acabou em óbito do, do doente...]

³⁷ [...Um velhote que veio cá ... não conseguia engolir, de repente. Não conseguia engolir rigorosamente nada, inclusive a saliva. Já tinha ido na véspera ao hospital privado, em Lisboa, tinham-lhe feito umas

prescrições e tal. ... Ele não estava melhor e veio, por acaso eu nesse dia estava no atendimento e vi o senhor. Ele estava com 92 anos, mas perfeitamente autônomo, vinha sozinho, a pé. Pronto e depois na altura, pedi à Gastro para lhe fazer uma endoscopia. O senhor fez a endoscopia e tinha um corpo estranho, tinha engolido a carne, tinha-lhe ficado ali impactada, tiraram-lhe aquilo e o senhor quase que me beijou no fim, não é. No fim, o senhor chegou e já sentia um alívio enorme, dei-lhe lá um copo de água só para testar e o senhor bebeu com uma satisfação...]

³⁸ [...Nós não podemos contratar profissionais conforme queremos e há 4 anos nós podíamos. Ou seja, e porventura nós às vezes temos mais dificuldades em arranjar médicos e preencher aquilo que são as escalas porque estamos circunscritos àqueles que já estão no hospital, ou seja, não podemos contratar um médico, ou 2 médicos, ou 3 médicos para vir trabalhar aqui 1 mês. São processos morosos, a contratação por contrato de trabalho hoje em dia é praticamente só através dos concursos credenciados dos médicos, eu tou a falar sobretudo médicos mas os outros profissionais é a mesma coisa, ainda que não seja através de concursos credenciados, tem que ter uma aprovação da tutela e até da parte do Ministério das Finanças também...]

PARECER DA COMISSÃO DE ÉTICA PARA A SAÚDE

Projeto de Doutoramento,

Título: **“Patient Satisfaction in Emergency Departments. An Empirical Investigation on its Measurement, Antecedents and Consequents”**

Investigadora Principal: Doutoranda, **Dra. Alina Abidova** (Doutoranda na Escola Nacional de Saúde Pública da Universidade Nova de Lisboa)

Serviço do CHLO onde decorrerá o projeto: **Serviço de Urgência do CHLO, no HSFX**

Após reunião de 21 de novembro de 2016 e no seguimento da retificação no modelo de Consentimento Informado e Questionário, estando atualmente o projeto de acordo com as normas de submissão impostas por esta CES, deliberou-se emitir **parecer favorável** à realização do mesmo.

A Comissão de Ética para a Saúde solicita à Investigadora Principal que, quando da conclusão deste projeto, lhe seja enviada uma síntese dos resultados e conclusões do mesmo.

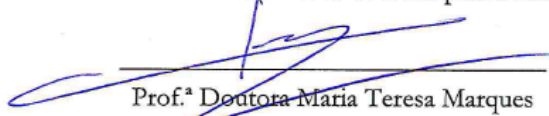
Ouvido o Relator, o processo foi votado pelos Membros da Comissão de Ética para a Saúde do Centro Hospitalar de Lisboa Ocidental presentes em reunião de 21 de novembro de 2016:

Presidente: Prof.^a Doutora Maria Teresa Marques

Dr. Carlos Costa, Enf.^a Clara Carvalho, Dra. Helena Farinha,
Dr. José Santana Carlos, Dr. Rui Campante Teles e Padre João Valente

Pelo exposto, emitiu-se a 23 de novembro de 2016, **parecer favorável**.

Presidente da Comissão de Ética para a Saúde


Prof.^a Doutora Maria Teresa Marques
MARIA TERESA MARQUES
Presidente da Comissão
de Ética para a Saúde

QUESTIONÁRIO ENSP-HSFX

Experiência e satisfação dos utentes do serviço de urgência do Hospital de São Francisco Xavier (HSFX)

A Escola Nacional de Saúde Pública da Universidade Nova de Lisboa está a realizar um estudo sobre a experiência e a satisfação dos utentes do serviço de urgência do Hospital de São Francisco Xavier. O objectivo do estudo é recolher informação sobre como o(a) Senhor(a) foi atendido(a) na urgência deste hospital, isto é, saber o que correu bem e o que correu mal e que avaliação faz dos cuidados que recebeu. A sua opinião sincera é muito importante para ajudar a melhorar as condições de atendimento e funcionamento das urgências hospitalares. As suas respostas são rigorosamente confidenciais e os dados recolhidos neste questionário e no processo clínico da Urgência serão utilizados apenas para efeitos deste estudo. O questionário tem uma duração aproximada de 20 minutos.

Muito obrigada pela sua participação!

CONSENTIMENTO INFORMADO, ESCLARECIDO E LIVRE PARA PARTICIPAÇÃO EM ESTUDO DE INVESTIGAÇÃO

Por favor, leia com atenção a seguinte informação. Se considerar que algum dado está incorrecto ou não está claro, não hesite em solicitar mais informações até ver todas as suas dúvidas esclarecidas. Se concorda com a proposta que lhe foi feita, assine este documento no espaço dedicado para o efeito.

Título do estudo

Satisfação dos Utesntes nos Serviços de Urgência. Uma investigação Empírica sobre Medidas, Antecedentes e Consequentes.

Enquadramento

Trabalho de investigação no âmbito do Doutoramento em Saúde Pública na Escola Nacional de Saúde Pública da Universidade Nova de Lisboa (ENSP-UNL).

Explicação do estudo

Este projecto tem como objectivo estudar a satisfação com a qualidade de atendimento e funcionamento do Serviço de Urgência do Hospital São Francisco Xavier (HSFX) através da aplicação de um inquérito por questionário a um conjunto de utentes que receberam cuidados de saúde nas urgências deste hospital no ano de 2016. A escolha dos participantes para este estudo foi feita de forma aleatória, isto é, através de sorteio a partir de uma listagem das admissões no Serviço de Urgência, não existindo qualquer outro motivo para que esteja a ser solicitada a sua importante colaboração através do preenchimento do questionário que lhe apresentamos. As suas respostas são rigorosamente confidenciais e os dados recolhidos no processo clínico da Urgência e no questionário serão utilizados apenas para efeitos deste estudo e tratados estatisticamente de forma agregada pela investigadora principal e seus orientadores. Os resultados deste estudo poderão contribuir para ajudar a melhorar as condições de atendimento e funcionamento das urgências hospitalares em geral e do serviço de Urgência do HSFX em particular.

Condições e financiamento

Os participantes são livres de optar por não integrar desde logo o estudo ou de abandoná-lo a qualquer momento depois de ter aceitado participar, sem quaisquer consequências por essa desistência. O presente estudo não tem objectivos comerciais nem lucrativos, sendo a participação dos indivíduos feita de forma voluntária e sem quaisquer contrapartidas ou prejuízos para os participantes.

Confidencialidade e anonimato

A participação no estudo respeita a confidencialidade da informação prestada e o anonimato de cada participante, não sendo registados quaisquer dados de identificação pessoal, observando, assim, os princípios da Declaração de Helsínquia (última actualização em Fortaleza, Brasil, 2013), da OMS e da

Comunidade Europeia. Este estudo foi submetido à Comissão de Ética para a Saúde do Centro Hospitalar de Lisboa Ocidental, tendo recebido parecer favorável quanto à validade dos seus objectivos e à forma como será conduzido.

Para qualquer esclarecimento adicional contactar, por favor, através do telefone 932 334 185
Email: a.abidova@ensp.unl.pt

Muito obrigada pela sua participação,



Dra. Alina Abidova (Investigadora Principal, Doutoranda ENSP)

O participante,

DECLARO ter lido e compreendido este documento bem como as informações que me foram prestadas. Foi-me garantida a possibilidade de, em qualquer altura, recusar participar neste estudo sem quaisquer prejuízos. Desta forma, aceito participar de forma voluntária e permito a utilização dos dados colhidos, confiando que apenas serão utilizados para esta investigação e nas garantias de confidencialidade e anonimato que me são dadas pelo investigador.

Assinatura do participante:

Local/ Data: _____

A1 Quando foi a última vez que esteve na Urgência do HSFX como utente/doente (em que mês de 2016)?

- ☐ Em que mês de 2016 _____
- ☐ Não sabe
- ☐ Não responde

A2 Antes desta ocasião, já tinha estado na Urgência do HSFX como utente/doente?

- ☐ Sim
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

A3 Quantas vezes esteve nesta Urgência como utente/doente durante o ano 2016?

- ☐ Número de vezes _____
- ☐ Não sabe
- ☐ Não responde

A4 Qual foi a razão que o levou pela última vez à Urgência como utente/doente?

- ☐ Acidente
- ☐ Doença
- ☐ Indisposição
- ☐ Outra (Qual?) _____
- ☐ Não sabe
- ☐ Não responde

A5 Quanto tempo esteve com sintomas, queixas, antes de ir à Urgência?

- ☐ Até 1 hora
- ☐ Mais de 1 até 2 horas
- ☐ Mais de 2 até 4 horas
- ☐ Mais de 4 até 6 horas
- ☐ Mais de 6 até 24 horas
- ☐ Mais de 1 até 7 dias
- ☐ Mais de 7 dias
- ☐ Não sabe
- ☐ Não responde

A6 Qual o meio de transporte que utilizou para se deslocar à Urgência:

- ☐ Ambulância do INEM
- ☐ Outra ambulância
- ☐ Transporte privado (veículo do próprio, familiares, amigos ou vizinhos)
- ☐ Transporte público (autocarro, comboio, táxi ou outros serviços contratados)
- ☐ Outro _____
- ☐ Não sabe
- ☐ Não responde

A7 Qual o principal motivo porque recorreu à Urgência hospitalar do HSFX:

- ☐ Foi aconselhado pela linha saúde 24 (Contactou a linha Saúde 24)
☐ Foi encaminhado pelo 112
☐ Não quis esperar por uma consulta (do Centro de Saúde ou de Especialidade)
☐ Não tem médico de família
☐ O Centro de Saúde não tem atendimento não programado (“urgências”)
☐ O horário do seu Centro de Saúde é muito reduzido/inconveniente para si
☐ Maior proximidade da Urgência
☐ Melhores condições de tratamento (na Urgência existem especialistas, pode-se logo fazer exames, etc.)
☐ Na Urgência o atendimento é mais rápido
☐ Outra (Qual ou Quais?) _____
☐ Não sabe
☐ Não responde

Q1 Nas suas respostas seguintes deve ter sempre presente a sua ÚLTIMA ida à Urgência do HSFX.

Utilizando a escala de 1 a 10, onde 1 significa "nada satisfeito" e 10 significa "totalmente satisfeito", vou colocar-lhe algumas questões sobre a sua experiência com o serviço de urgência do HSFX. As respostas de 1 a 5 correspondem a uma avaliação negativa e de 6 a 10 a uma avaliação positiva. (Pode escolher qualquer número que ache melhor corresponder a sua avaliação: 1 ou 2 ou 3 ou 4 ou 5 ou 6 ou 7 ou 8 ou 9 ou 10)

Em relação à ACESSIBILIDADE E DISPONIBILIDADE, como classificaria a(o)...

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Localização do Hospital e da Urgência dentro da cidade	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Orientação dentro da Urgência (por exemplo sinalética, indicações dos profissionais, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Distância entre as várias áreas do serviço de Urgência (por exemplo para aceder às áreas de exames, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Disponibilidade de equipamento e de técnicos para fazer exames, análises	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia a acessibilidade e disponibilidade	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q1-2 Todas as perguntas seguintes dizem respeito apenas a essa última experiência.

Precisou de algum tipo de ajuda dentro do hospital para obter informação necessária em termos de orientação no serviço de Urgência?

- ☐ Sim (Qual?) _____
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

Q1-3 Na sua opinião, qual era o movimento, em termos do número de pessoas (utentes/doentes), na Urgência enquanto lá esteve?

- ☐ Tinha pouco movimento
- ☐ Tinha um movimento normal
- ☐ Tinha muito movimento
- ☐ Tinha demasiado movimento
- ☐ Não Sabe
- ☐ Não responde

Q1-4 Em relação às INSTALAÇÕES E CONDIÇÕES FÍSICAS, como classificaria a(o)...

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Condições, conforto e comodidade da sala de espera (por exemplo em termos de temperatura ambiente, estado de conservação das instalações, acesso a comidas e bebidas ligeiras, etc.)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Condições, conforto e comodidade da Sala de Observações (onde você foi observado(a) por um médico)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Condições, conforto e comodidade das instalações onde realizou exames	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Modernidade e funcionamento do equipamento	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Limpeza e higiene das instalações	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia instalações e condições físicas da Urgência	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q1-5 Utilizando a mesma escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)", como classificaria a forma como foi garantida a sua PRIVACIDADE (por exemplo enquanto estava a ser examinado, quando teve de tirar a roupa, etc.).

Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2 Em relação ao momento da ADMISSÃO NA URGÊNCIA, como classificaria o atendimento no balcão onde fez a inscrição...

Não se esqueça que as respostas de 1 a 5 correspondem a uma avaliação negativa e de 6 a 10 a uma avaliação positiva. Pode escolher qualquer número que melhor corresponda à sua avaliação utilizando a escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)"

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Simpatia e disponibilidade dos funcionários no balcão onde fez a inscrição	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Competência e profissionalismo dos funcionários no balcão onde fez a inscrição	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia o desempenho do/s funcionário/s que o(a) atendeu/atenderam	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-1 Quando chegou à Urgência, trazia consigo alguma informação clínica em papel (por exemplo informação do seu médico de família, etc.)?

- ☐ Sim
☐ Não
☐ Não sabe
☐ Não responde

Q2-2 Antes de ser visto(a) por um médico, os utentes passam pelo processo de triagem onde um enfermeiro classifica o seu grau de gravidade através da atribuição de uma cor que define o tempo de espera.

Quanto tempo esperou para ser atendido(a) pela triagem?

- ☐ Não esperou tempo nenhum
☐ Até 5 minutos
☐ Mais de 5 até 15 minutos
☐ Mais de 15 até 30 minutos
☐ Mais de 30 minutos até 1 hora
☐ Mais de 1 hora
☐ Não Sabe
☐ Não responde

Q2-2a Utilizando a mesma escala de 1 a 10, onde 1 significa "muito demorado" e 10 significa "muito rápido", como classificaria o tempo de espera para ser atendido(a) pela triagem tendo em conta o seu grau de gravidade

Muito demorado 1	2	3	4	5	6	7	8	9	Muito rápido 10	Não sabe 88	Não responde 99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-3 Que cor lhe foi atribuída na triagem de acordo com a urgência do seu caso?

- ☐ Vermelho
- ☐ Laranja
- ☐ Amarela
- ☐ Verde
- ☐ Azul
- ☐ Branco
- ☐ Não Sabe
- ☐ Não responde

Q2-4 Concordou com a cor que lhe foi atribuída ou considera que deveria ter tido uma cor mais urgente de acordo com a gravidade da sua situação?

- ☐ Sim, concordei com a cor atribuída
- ☐ Não, deveria ter tido uma cor mais urgente
- ☐ Não sabe
- ☐ Não responde

Q2-5 Utilizando a mesma escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)",

Em relação a esse PROCESSO DE TRIAGEM, como classificaria...

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Simpatia e disponibilidade da enfermeira(o) que fez a triagem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Competência e profissionalismo do enfermeiro(a) que fez a triagem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia o desempenho de enfermeiro(a) que fez a triagem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-6 Quanto tempo esperou para ser atendido(a) por um médico depois da triagem?

- ☐ Não esperou tempo nenhum
- ☐ Até 15 minutos
- ☐ Mais de 15 até 30 minutos
- ☐ Mais de 30 minutos até 1 hora
- ☐ Mais de 1 até 2 horas
- ☐ Mais de 2 até 4 horas
- ☐ Mais de 4 até 6 horas
- ☐ Não Sabe
- ☐ Não responde

Q2-6a Utilizando novamente a escala de 1 a 10, onde 1 significa "muito demorado" e 10 significa "muito rápido", como classificaria o tempo de espera para ser atendido(a) por um médico depois da triagem tendo em conta o seu grau de gravidade

Muito demorado	1	2	3	4	5	6	7	8	9	Muito rápido	10	Não sabe	88	Não responde	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Q2-7 Onde esperou a maior parte do tempo para ser atendido(a) depois da triagem?

- ☐ Fui tratado imediatamente
- ☐ Numa sala de observações
- ☐ Numa maca, no corredor
- ☐ Numa maca, na sala de observações
- ☐ Numa sala de espera
- ☐ Outra situação (Qual?) _____
- ☐ Não sabe
- ☐ Não responde

Q2-8 Recebeu informação acerca das possíveis demoras no atendimento ou tempos de espera?

- ☐ Sim
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

Q2-9 Se pensa que esperou muito tempo, foi lhe dada alguma explicação para a demora no atendimento?

- ☐ Sim
- ☐ Não
- ☐ Não esperou muito tempo
- ☐ Não sabe
- ☐ Não responde

Q2-10 Não se esqueça que as respostas de 1 a 5 correspondem a uma avaliação negativa e de 6 a 10 a uma avaliação positiva. Você pode escolher qualquer número que ache melhor corresponder a sua avaliação utilizando a escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)".

Pensando nos Médico(s) que o(a) atenderam no serviço de Urgência, como os(as) classificaria relativamente a cada um dos seguintes aspectos

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Simpatia e disponibilidade do(s) médicos(s) que o atenderam na Urgência	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Competência e profissionalismo do(s) médico(s) que o atenderam na Urgência	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
A forma como o médico lhe explicou o seu problema de saúde (diagnóstico) durante a consulta na Urgência	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
As explicações dadas pelo médico sobre os exames realizados e os objectivos do tratamento que deveria fazer	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
A informação fornecida sobre os cuidados que deveria ter, recomendações e como tomar ou aplicar os medicamentos prescritos (escrita ou oral) depois de sair do hospital	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia o desempenho do(s) médico(s) que o(a) acompanhou/acompanharam	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-11 Durante e/ou depois da consulta com o médico (isto é, excluindo o momento da triagem), teve algum contacto com enfermeiros?

- ☐ Sim (responda Q2-11-1)
- ☐ Não (siga para Q2-12)
- ☐ Não sabe (siga para Q2-12)
- ☐ Não responde (siga para Q2-12)

Q2-11-1 Utilizando a mesma escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)",

Relativamente ao pessoal de Enfermagem, com quem contactou durante e/ou depois da consulta com o médico (isto é, excluindo o momento da triagem), como os(as) classificaria relativamente a cada um dos seguintes aspectos

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Simpatia e disponibilidade dos enfermeiros	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Competência e profissionalismo dos enfermeiros	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia o desempenho do pessoal de enfermagem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-12 Durante a sua permanência na Urgência, foi acompanhado(a) em algum momento por um Auxiliar (por exemplo, quem dá a alimentação, leva macas, acompanha doentes, etc.)?

- ☐ Sim (responda a Q2-13)
- ☐ Não (siga para Q2-14)
- ☐ Não sabe (siga para Q2-14)
- ☐ Não responde (siga para Q2-14)

Q2-13 Utilizando novamente a escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)",

Relativamente ao pessoal Auxiliar como os(as) classificaria relativamente a cada um dos seguintes aspectos

	Nada satisfeito 1	2	3	4	5	6	7	8	9	Totalmente satisfeito 10	Não sabe 88	Não responde 99
Simpatia e disponibilidade dos auxiliares	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Competência e Profissionalismo dos auxiliares	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia o desempenho do pessoal auxiliar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-14 Na sua opinião, na Urgência sentiu que havia falta de um número suficiente de algum tipo de profissional? (pode assinalar mais do que uma opção, caso se justifique)

- ☐ Não sentiu falta de nenhum tipo de profissional
- ☐ Médicos
- ☐ Enfermeiros
- ☐ Auxiliares (por exemplo, quem dá a alimentação, leva macas, acompanha doentes, etc.)
- ☐ Técnicos de saúde (quem faz exames)
- ☐ Pessoal administrativo
- ☐ Não sabe
- ☐ Não responde

Q2-15 Em relação aos EXAMES e/ou ANÁLISES,

Durante o período de atendimento na urgência do HSFX teve que fazer Exames e/ou Análises? (análises, endoscopias, radiografias, pensos, TAC's, etc.)

- ☐ Sim (responda a Q2-16)
- ☐ Não (siga para Q2-19)
- ☐ Não sabe (siga para Q2-19)
- ☐ Não responde (siga para Q2-19)

Q2-16 Que tipo de Exames e/ou Análises teve de fazer? (pode assinalar mais do que uma opção, caso se justifique)

- ☐ Análises (ao sangue, à urina, etc.)
- ☐ RX
- ☐ TAC
- ☐ Ecografia
- ☐ Endoscopia
- ☐ Outro (Qual?) _____
- ☐ Não Sabe
- ☐ Não responde

Q2-17 Quanto tempo esperou para a realização de exames e/ou análises?

- ☐ Não esperou tempo nenhum
- ☐ Até 15 minutos
- ☐ Mais de 15 até 30 minutos
- ☐ Mais de 30 minutos até 1 hora
- ☐ Mais de 1 até 2 horas
- ☐ Mais de 2 até 4 horas
- ☐ Mais de 4 até 6 horas
- ☐ Mais de 6 até 9 horas
- ☐ Mais de 9 horas
- ☐ Não Sabe
- ☐ Não responde

Q2-17a Utilizando a mesma escala de 1 a 10, onde 1 significa "muito demorado" e 10 significa "muito rápido", como classificaria o tempo de espera para a realização de exames e/ou análises tendo em conta o seu grau de gravidade

Muito demorado	1	2	3	4	5	6	7	8	9	Muito rápido	10	Não sabe	88	Não responde	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-17-1 Quanto tempo esperou para ser chamado(a) novamente pelo(a) medico(a) depois de fazer exames e/ou análises?

- ☐ Não esperou tempo nenhum
- ☐ Até 15 minutos
- ☐ Mais de 15 até 30 minutos
- ☐ Mais de 30 minutos até 1 hora
- ☐ Mais de 1 até 2 horas
- ☐ Mais de 2 até 4 horas
- ☐ Mais de 4 até 6 horas
- ☐ Mais de 6 até 9 horas
- ☐ Mais de 9 horas
- ☐ Não Sabe
- ☐ Não responde

Q2-17b Utilizando a mesma escala de 1 a 10, onde 1 significa "muito demorado" e 10 significa "muito rápido", como classificaria o tempo de espera para ser chamado(a) novamente pelo(a) medico(a) depois de fazer exames e/ou análises tendo em conta o seu grau de gravidade

Muito demorado	1	2	3	4	5	6	7	8	9	Muito rápido	10	Não sabe	88	Não responde	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-18 Utilizando, novamente, a escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)",

Em relação à realização de Exames e/ou Análises, como os(as) classificaria relativamente a cada um dos seguintes aspectos

	Nada satisfeito	1	2	3	4	5	6	7	8	9	Totalmente satisfeito	10	Não sabe	88	Não responde	99
Simpatia e disponibilidade dos técnicos de saúde responsáveis	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Competência e profissionalismo dos técnicos de saúde responsáveis	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Em termos globais, como avalia a qualidade dos serviços prestados na realização de exames ou análises	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-19 Em relação aos TRATAMENTOS,

Durante o momento de atendimento (permanência) na Urgência do HSFX recebeu algum Tratamento?

- ☐ Sim (responde a Q2-20)
- ☐ Não (siga para Q2-21)
- ☐ Não sabe (siga para Q2-21)
- ☐ Não responde (siga para Q2-21)

Q2-20 Como decorreu o tratamento recebido? Use novamente a escala de 1 a 10, onde 1 significa "nada satisfeito" e 10 significa "totalmente satisfeito"

Nada satisfeito	1	2	3	4	5	6	7	8	9	Totalmente satisfeito	10	Não sabe	88	Não responde	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐		☐	☐		☐	

Q2-21 Em relação ao INTERNAMENTO,

No seguimento do atendimento no serviço de urgência do HSFX foi internado no HSFX ou (foi encaminhado para internamento) noutro Hospital?

- ☐ Sim, no HSFX (responde Q2-22)
- ☐ Sim, noutro hospital (responde Q2-22)
- ☐ Não (siga para Q2-23)
- ☐ Não sabe (siga para Q2-23)
- ☐ Não responde (siga para Q2-23)

Q2-22 Por quanto tempo esteve internado?

- ☐ Até 2 dias
- ☐ Mais de 2 até 4 dias
- ☐ Mais de 4 até 8 dias
- ☐ Mais de 8 até 16 dias
- ☐ Mais de 16 até 30 dias
- ☐ Mais de 30 dias
- ☐ Não Sabe
- ☐ Não responde

Q2-23 Foi à Urgência com alguém (acompanhado(a) por amigo, familiar, etc.)?

- ☐ Sim (responde Q2-24)
- ☐ Não (siga para Q2-27)
- ☐ Não sabe (siga para Q2-27)
- ☐ Não responde (siga para Q2-27)

Q2-24 Foi permitido ser acompanhado(a) por um familiar, ou outra pessoa que estivesse consigo durante todo o processo na Urgência?

- ☐ Sim
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

Q2-25 Um(a) médico(a) ou um(a) enfermeiro(a) da Urgência do HSFX comunicaram com a sua família ou com as pessoas que o(a) acompanharam sobre a sua situação de saúde?

- ☐ Sim (responde Q2-26)
- ☐ Não (siga para Q2-27)
- ☐ Não sabe (siga para Q2-27)
- ☐ Não responde (siga para Q2-27)

Q2-26 Utilizando a escala de 1 a 10, onde 1 significa "muito má (nada satisfeito)" e 10 significa "muito boa (totalmente satisfeito)", como avalia a forma como um(a) médico(a) ou um(a) enfermeiro(a) da Urgência do HSFX comunicaram com a sua família ou com as pessoas que o(a) acompanharam sobre a sua situação de saúde? (Por exemplo, informações durante o atendimento na Urgência, sobre a realização de exames ou análises ou eventual internamento, etc.)

Nada satisfeito										Totalmente satisfeito	Não sabe	Não responde
1	2	3	4	5	6	7	8	9	10	88	99	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Q2-27 Em relação à PROCESSO DE SAÍDA,

Foi-lhe dada a nota de alta (carta com resumo do que se passou na Urgência)?

- ☐ Sim (siga para Q2-29)
- ☐ Não (responde Q2-28)
- ☐ Não sabe (siga para Q2-30)
- ☐ Não responde (siga para Q2-30)

Q2-28 Se não, foi-lhe dada alguma explicação porquê?

- ☐ Sim
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

Q2-29 Quanto tempo esperou desde que lhe disseram que ia ter alta até sair do hospital?

- ☐ Não esperou tempo nenhum
- ☐ Até 5 minutos
- ☐ Mais de 5 até 15 minutos
- ☐ Mais de 15 até 30 minutos
- ☐ Mais de 30 minutos até 1 hora
- ☐ Mais de 1 hora
- ☐ Não Sabe
- ☐ Não responde

Q2-29a Utilizando novamente a escala de 1 a 10, onde 1 significa "muito demorado" e 10 significa "muito rápido", como classificaria o tempo de espera desde que lhe disseram que ia ter alta até sair do hospital

Muito demorado	1	2	3	4	5	6	7	8	9	Muito rápido	10	Não sabe	Não responde
	1	2	3	4	5	6	7	8	9	10		88	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q2-30 Desde que entrou até que saiu, ao todo quanto tempo esteve na Urgência do HSFx?

- ☐ Até 1 hora
- ☐ Mais de 1 até 3 horas
- ☐ Mais de 3 até 6 horas
- ☐ Mais de 6 até 12 horas
- ☐ Mais de 12 até 24 horas
- ☐ Mais de 24 até 48 horas
- ☐ Mais de 48 horas
- ☐ Não Sabe
- ☐ Não responde

Q2-31 Efetuou o pagamento da taxa moderadora ou tem isenção?

- ☐ Pagou
- ☐ Tem isenção
- ☐ Não pagou, porque não sabe se tem isenção
- ☐ Não pagou, porque não lhe pediram
- ☐ Não pagou, porque não tinha dinheiro
- ☐ Não pagou, porque não queria pagar
- ☐ Não sabe
- ☐ Não responde

Q3 Acha que o pagamento actual da taxa moderadora para aceder ao Serviço de Urgência pode influenciar a qualidade do atendimento e tratamento? Utilize a escala onde 1 significa "muito improvável" e 10 significa "muito provável"

Muito improvável	1	2	3	4	5	6	7	8	9	Muito provável	10	Não sabe	Não responde
	1	2	3	4	5	6	7	8	9	10		88	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q3-1 Independentemente dos valores actuais e isenções em vigor, concorda com a existência de um pagamento de uma taxa moderadora para aceder ao Serviço de Urgência, de modo a contribuir para melhorar o atendimento e tratamento recebido? Utilize a escala onde 1 significa "discordo totalmente" e 10 significa "concordo totalmente"

Discordo totalmente	1	2	3	4	5	6	7	8	9	Concordo totalmente	10	Não sabe	Não responde
	1	2	3	4	5	6	7	8	9	10		88	99
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q4 Tendo em conta a sua experiência com o serviço de urgência do HSFX, até que ponto considera que o seu funcionamento correspondeu às suas expectativas? Ficou desiludido ou excedeu o que estava a espera? Utilize a escala onde 1 significa "muito menos que o esperado" e 10 significa "muito mais do que o esperado"

Muito menos que o esperado 1	2	3	4	5	6	7	8	9	Muito mais do que o esperado 10	Não sabe 88	Não responde 99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q5 Considerando toda a sua experiência com o serviço de Urgência do HSFX, qual é o seu grau de satisfação? Use a escala de 10 pontos onde 1 significa “muito insatisfeito” e 10 “muito satisfeito”

Muito insatisfeito 1	2	3	4	5	6	7	8	9	Muito satisfeito 10	Não sabe 88	Não responde 99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q5-1 Em relação à QUALIDADE DOS CUIDADOS DE SAÚDE,

Utilizando a escala de 1 a 10, onde 1 significa "nada apropriado" e 10 significa "totalmente apropriado" como classificaria, em termos globais, a qualidade dos cuidados de saúde que lhe foram prestados?

Nada apropriado 1	2	3	4	5	6	7	8	9	Totalmente apropriado 10	Não sabe 88	Não responde 99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q6 Confiaria no serviço de Urgência do Hospital de São Francisco Xavier numa próxima vez que necessitasse? Use a escala de 10 pontos onde 1 significa “muito improvável” e 10 “muito provável”

Muito improvável 1	2	3	4	5	6	7	8	9	Muito provável 10	Não sabe 88	Não responde 99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q7 Alguma vez apresentou uma reclamação verbal ou por escrito do serviço de Urgência deste HSFX?

- ☐ Sim verbal - qual motivo _____
- ☐ Sim por escrito - qual motivo _____
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

A8 De uma maneira geral, como avalia o seu estado de saúde em relação ao de uma pessoa da sua idade.

- ☐ Muito bom
- ☐ Bom
- ☐ Razoável
- ☐ Mau
- ☐ Muito mau
- ☐ Não sabe
- ☐ Não responde

A9 Tem alguma doença ou condição de saúde crónica diagnosticadas por um médico?

- ☐ Sim (Qual ou quais?) _____
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

A10 Em relação aos seus problemas de saúde, habitualmente você é seguido(a) em: (pode assinalar mais do que uma opção, caso se justifique)

- ☐ Consulta Hospitalar
- ☐ Consulta do Centro de Saúde
- ☐ Consulta Privada
- ☐ Outra _____
- ☐ Não tem problemas de saúde que necessitem de acompanhamento
- ☐ Não sabe
- ☐ Não responde

A11 Qual é o seu grau de satisfação com a vida em geral? Use a escala de 10 pontos onde 1 significa “muito insatisfeito” e 10 “muito satisfeito”

Muito insatisfeito	2	3	4	5	6	7	8	9	Muito satisfeito	Não sabe	Não responde
1									10	88	99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

A12 Considerando todos os aspectos da sua vida, qual o grau de felicidade que sente? Use a escala de 10 pontos onde 1 significa “muito infeliz” e 10 “muito feliz”

Muito infeliz	2	3	4	5	6	7	8	9	Muito feliz	Não sabe	Não responde
1									10	88	99
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

A13 Em que distrito e concelho habita:

- ☐ Distrito e concelho _____
- ☐ Não sabe
- ☐ Não responde

A14 Qual a sua nacionalidade:

- ☐ Portuguesa
- ☐ Outra nacionalidade (indique) _____
- ☐ Dupla nacionalidade (indique) _____
- ☐ Não sabe
- ☐ Não responde

A15 Por favor, indique o seu sexo:

- ☐ Masculino
- ☐ Feminino

A16 Por favor, indique a sua idade (anos)?

- ☐ Idade _____
- ☐ Não sabe
- ☐ Não responde

A17 Qual a sua situação familiar:

- ☐ Solteiro(a)
- ☐ Casado(a)
- ☐ União de facto
- ☐ Separado(a)
- ☐ Divorciado(a)
- ☐ Viúvo(a)
- ☐ Não sabe
- ☐ Não responde

A18 Por favor, indique quantas pessoas vivem no seu agregado familiar além de si?

- ☐ Número de pessoas _____
- ☐ Não sabe
- ☐ Não responde

A19 Tem seguro de saúde?

- ☐ Sim
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

A20 Tem subsistema de saúde (por exemplo, ADSE, SAMS, etc.)?

- ☐ Sim (indique) _____
- ☐ Não
- ☐ Não sabe
- ☐ Não responde

A21 Qual das seguintes descrições se adequa melhor à sua situação actual de emprego?

- ☐ Empregado
- ☐ Não empregado
- ☐ Desempregado
- ☐ Estudante
- ☐ Doméstico
- ☐ Reformado
- ☐ Outra _____
- ☐ Não sabe
- ☐ Não responde

A22 Qual o grau de ensino (escolaridade) que completou?

- ☐ Não sabe Ler nem Escrever
- ☐ Sabe Ler e escrever sem possuir grau de ensino
- ☐ Ensino Básico 1º Ciclo (até 4ª classe)
- ☐ Ensino Básico 2º Ciclo (5º e 6º anos/ ciclo preparatório)
- ☐ Ensino Básico 3º Ciclo (9º ano/5º ano dos liceus, curso geral do liceu/antigas escolas técnicas)
- ☐ Ensino Secundário (12º ano/7º ano dos liceus/ escolas técnicas)
- ☐ Ensino Superior (Licenciatura ou Bacharelato)
- ☐ Pós-graduação (Mestrado ou Doutoramento)
- ☐ Não sabe
- ☐ Não responde

A23 Qual é a sua profissão?

(Em caso de reformado ou desempregado, indique a actividade profissional antes da reforma ou situação de desemprego. No caso de mais do que uma actividade profissional, registe a sua principal actividade, no caso de ser estudante, indique que é estudante).

- ☐ Profissão _____
- ☐ Não sabe
- ☐ Não responde

A24 Vou indicar-lhe 8 escalões de rendimentos. Diga-me por favor qual deles corresponde ao seu rendimento familiar mensal depois de descontados impostos e contribuições:

- ☐ Menos de 400 euros
- ☐ 400 – 699 euros
- ☐ 700 – 999 euros
- ☐ 1000 – 1499 euros
- ☐ 1500 – 1999 euros
- ☐ 2000 – 2499 euros
- ☐ 2500 – 2999 euros
- ☐ Mais de 3000 euros
- ☐ Não sabe
- ☐ Não responde

Gostaria de acrescentar algum comentário ou fazer alguma sugestão?

Chegámos ao fim do questionário. Em nome da Escola Nacional de Saúde Pública e do Hospital São Francisco Xavier agradecemos o tempo despendido para responder a este questionário.

Muito obrigada!