

**THE ATTITUDE TOWARDS DEPRESSION AMONG PRIMARY HEALTH CARE
PHYSICIANS IN DAMMAM AND ALKHOBAR AREAS, EASTERN PROVINCE, SAUDI
ARABIA**

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**Masters Dissertation to obtain the Master's Degree in Primary Care Mental Health
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The attitude towards depression among primary health care physicians in Dammam and Alkhobar areas, eastern province ,Saudi Arabia Master degree research proposal,
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Abstract

Introduction: Although general practitioners (GPs) can identify depression many patients remain untreated due to causes other than lack of clinical skills. Negative attitudes of primary care clinicians could influence treatment including a lack of confidence, difficulty in communication and using interpreter services, and not sharing the same cultural background as the patient.

Diagnostic studies revealed that primary care physicians or family physicians either over- or underdiagnose depressive disorders. Many attempts have been made to train or educate physicians to improve identification and diagnosis of depression. However, the outcomes were disappointing. The problem of diagnosing depression diagnosis may not just be a result of knowledge gap or inadequate clinical skills in the primary care physicians but also due to the doctors' attitude.

There is evidence that GP's who complete mental health training have more positive attitudes towards depressed patients and higher levels of confidence in diagnosing common mental disorders, and a successful screening program in primary healthcare can be a cost-effective strategy for early detection of depression because it is the first line of contact between health system and the people.

Aim: This study aimed to explore the attitude of PHC (Primary Health Care) physicians in Dammam and AL Khobar area, Saudi Arabia towards depression using the Revised Depression Attitude Questionnaire (R-DAQ).

Methods: This cross-sectional survey was conducted on all PHC centers in AL Khobar and Dammam regions. The study population included all medical practitioners working in the PHC clinics of the Ministry of Health, the Kingdom of Saudi Arabia. Data was collected between July 01, 2019 to October 01, 2019. Demographic data collected included gender, age, marital status, nationality, job title, previous mental health training, personal history of depression and family history. Attitude to depression was assessed using the 22 item Revised Depression Attitude Questionnaire (R-DAQ).

Results: Of the 197 (89%) responders 35.5% were male, 64.5% female. The majority were aged 30-40 years with 7.1% over 50 years old. 83% of participants were Saudi, 87.1% were married, 43.4% were GP's, 3.1% were consultants and 55% reported no previous training in mental health. 1% of participants reported a previous history of depression and 5% reported a family history of depression.

This study found no gender differences in the mean scores of attitudes towards depression. A positive attitude to depression was associated with being a specialist, being younger and having previous mental health training.

Conclusions: Attitudes to depression may be improved by establishing a training intervention to improve professional confidence in managing depression, and the assessment and management of suicidal ideas and focusing on older physicians who had no or little previous training. Qualitative research should be conducted to explore the reasons behind misconceptions about depression care among PHC's physicians and the association between cultural misconceptions and attitudes may need to be addressed in the future research.

Keywords: Depression, Attitude, Primary care, Physicians, Saudi

نبذة مختصرة للدراسة

المقدمة: الدراسات السابقة وضحت أن أطباء الرعاية الصحية الأولية يشخصون مرض الاكتئاب بشكل إما أكثر أو أقل من المطلوب. عدة محاولات جرت لتدريب الأطباء من أجل تطوير مهاراتهم في التعامل مع الاكتئاب لكن هذه المحاولات لم تكن كافية. بعض الباحثين إقترحوا الاستقصاء عن مواقف و آراء الاطباء الشخصية بخصوص مرض الاكتئاب و محاولة فهم وصمة العيب و المفاهيم الخاطئة المتعلقة بمرض الاكتئاب.

الهدف: تهدف هذه الدراسة الى استكشاف مواقف أطباء الرعاية الصحية الأولية العاملين في منطقة الدمام و الخبر بالسعودية بخصوص مرض الاكتئاب باستخدام استبيان موقف الاكتئاب.

الطريقة: هذه الدراسة عبارة عن مسح يشمل كل الأطباء العاملين في ٤٦ مركز رعاية صحية (منهم ١٣ مركز في الخبر و ٣٣ مركز في الدمام). الاستبيان المستخدم تم تقسيمه الى ٣ اجزاء تشمل مستوى الثقة المهنية في علاج الاكتئاب، و مستوى التفاؤل العلاجي وكذلك الموقف العام من المرض. تم جمع البيانات بواسطة ٤ أطباء امتياز مدرين على ذلك و تم ادخال البيانات الى برنامج احصائي من اجل تحليلها. النتائج: من بين ١٩٧ طبيب شملتهم الدراسة بمعدل تجاوب ٨٩٪ وجدنا ٣٥٪ ذكور، ٦٤٪ إناث. مستوى الثقة المهنية أظهر مستويات اقل من الموافقة مقارنة بباقي المستويات التي أظهرت مواقف اكثر ايجابية للأطباء. المتوسط العام أظهر موقفا ايجابيا لأطباء الرعاية الصحية الأولية تجاه مرض الاكتئاب و لكن كان هناك تباين كبير بالنسبة للأسئلة المفردة. في التحليل الثنائي أظهر كل من العمر و الجنسية و المنطقة و العمل و التدريب السابق على الصحة النفسية أظهروا علاقات ذات دلالة احصائية مع المواقف الايجابية من مرض الاكتئاب. انما عند التحليل الانحداري فقط العمر و العمل و التدريب السابق أظهرت علاقات ذات دلالة احصائية تجاه مرض الاكتئاب.

الاستنتاج: الاطباء بالمراكز الصحية لديهم بشكل عام مواقف ايجابية أكثر قليلا من المتوسط و لكن على مستوى الاسئلة الفردية تم تسجيل الكثير من المواقف السلبية. خصوصا فيما يتعلق بمستوى الارتياح في علاج مرض الاكتئاب و مستوي الثقة في تشخيص المريض ذو الميول الانتحارية. كون الطبيب العام صغير العمر و حاصل على تدريب سابق في الصحة النفسية كانت هناك فرصة أكثر ليكون لديه مواقف ايجابية من التعامل مع مرض الاكتئاب.

Table of contents

Acknowledgements	3
English abstract	4
Arabic abstract	5
Table of contents	6
List of tables	7
List of abbreviations	8
Introduction	9
Literature review	11
Methodology	23
Results	27
Discussion	42
Conclusions	50
References	52
Appendices	57

List of tables:

	Page no.
Table 1	27
Table 2	29
Table 3	31
Table 4	33
Table 5	34
Table 6	37
Table 7	39
Table 8	41

List of abbreviations:

MOH: Ministry of Health

PHC: Primary health care

SPSS: Statistical package for the social sciences

WHO: World Health Organization

GxE: Gene-environmental interaction

CES-D: Center for Epidemiologic Studies Depression Scale

SCID: Structured Clinical Interview for DSM Disorder,

R-DAQ: Revised Depression Attitude Questionnaire

MDD: major depressive disorders

DSM: Diagnostic and Statistical Manual of Mental Disorders

DALY: Disability Adjusted life years

YLDs: Years of Life with Disability

PHQ: Patient Health Questionnaires

GWAS: genome wide association studies

GPs: general practitioners

Introduction

Depression includes a group of mood disorders affecting about 322 million people in the world and characterized by sadness, low self-esteem, loss of enjoyment in the life, loss of appetite and tiredness, loss of energy, disturbance in sleeping, and difficulty in concentration [1]. Depression occurs in any age but typically starts at the adolescence or early adulthood with either chronic or recurrent episodes occur throughout the life. Globally, depression is a major public health problem and one of the leading causes of disease burden with an estimated lifetime prevalence of 10-15% [2].

Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 [3] classified the depression based on severity rating into mild, moderate and severe. Additionally, DSM-5 included other subtypes of depression such as secondary depression due to an obvious extraneous factor, psychotic depression related to other psychosis, and melancholic depression. The prevalence of depression among women is much higher than that among men, particularly during the reproductive years [4]. This difference is consistent through all age groups. Furthermore, depression in females is twice as prevalent in males in young age group 14-25, but this difference drops with increase in age [5]. Social factors play the major role in the development of the depressive disorders. The significant social predictors of depression include low educational level, low income, presence of financial problems, living alone without partner, unemployment, feeling of being discriminated, religious background and lack of social life [6]. Moreover, modernization is an important determinant which leads to increase in the incidence of depression due to failure to cope with stresses and high expectations associated with modern life [7]. Recent literature reported the role of genetic factors in the development of depression. The gene-environmental interaction (GxE) research found that association between major depression disorders and environmental factors are modified by the genetic effect [8].

Due to a high burden, chronic nature, and sometimes treatment-resistance of depressive disorders, the primary preventive strategies could be more effective than routine management which focuses on the diagnosis and treatment [9]. About a half of the patients with depression are not diagnosed correctly by the general practitioners in the usual healthcare [10]. Thus, screening at primary health care level

can contribute effectively in the early detection and treatment of the depression. The need of accurate and reliable tools to detect and monitor depressive patients leads to the development of good diagnostic techniques including Center for Epidemiologic Studies Depression Scale (CES-D), Structured Clinical Interview for DSM Disorder (SCID), and Depression Attitudes Questionnaire. The suitability and applicability of these diagnostic instruments for primary health care is not clear and required further in-depth evaluation.

In Saudi Arabia, the studies showed wide variability in the prevalence of depressive symptoms among patients attending primary healthcare clinics with a range of 12% to 49.9% [11, 12]. This variation can be explained by different assessment methods, diseases classification, and various characteristics of the population included in these studies. The use of a valid standardized screening tool based on the recent classification of the depression will result in more reliable estimates with subsequent proper intervention and treatment. Moreover, detection and management of patients is greatly influenced by the attitude of physician toward depression [13]. Many depression cases are missed during the medical interview due to several factors that include physician stigma, doctor unawareness, overlap between physical and psychological symptoms, lack of doctor patient relationship, poor training and discomfort in addressing mental health concerns and duration of tenure [14, 15].

Literature review:

Definition of depression

World health organization divided the depressive disorders into major depressive disorders/episodes and dysthymia [1]. Major depressive disorders/episodes characterized by depressed mood, reduced energy, and loss of enjoyment. Based on the frequency and intensity of the symptoms, the depression is further divided into mild, moderate, and severe. Dysthymia is a milder but persistent form of similar depressive disorders [1]. Regarding major depressive disorders (MDD), Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV identified a total of nine symptoms that can be recognized in depressed patients including depressed mood, low activity, loss of interest, fatigue, loss of appetite, sleep disturbances, feeling of guilt, difficulty in concentration, and suicidal ideation or behavior [20].

Mild MDD is identified by 6 mild symptoms involves either depressed mood or lack of interest, while moderate MDD identified by 7 or 8 symptoms including fatigue. Moreover, severe MDD is diagnosed of 6 or more symptoms with severe fatigue or strong suicidal ideation [20]. The persistent grief reaction after two weeks is also classified as MDD which allow for early diagnosis and treatment [21]. Furthermore, DSM-IV identified other subtypes of depression such as secondary depression due to an obvious extraneous causes, psychotic depression related to other psychosis, and melancholic depression [22].

Patients with mild form of MDD with a duration lower than two months and without suicidal intent, psychotic thinking, or loss of self-worthiness are unlikely to develop other episode within the next year (with only 3.7% recurrence rate) [23]. These cases may be better to perceived as intensive normal sadness rather than major depressive disorders. The inclusion of grief cases after loss of someone who loves received a lot of critics, since the clinical and not sociodemographic profiles of these patients is different from those with MDD and they have much better prognosis and not related to suicidal behavior

Global size of the problem

The prevalence of depressive disorders varies greatly between different populations and different age and sex groups. A systematic review, conducted by Ferrari et al., documented the prevalence of depression from 116 studies [26]. They found the point prevalence of depressive disorders differed from 0.05% in old Japanese males [27] to 73% in Afghanistan's women [28]. However, recent estimates of WHO found a global prevalence of depressive disorders to be 4.4%. The estimated global lifetime prevalence of depressive disorders was much higher 10-15% [2]. The estimates were significantly different based on gender, the estimated prevalence in males and females was 3.6% 5.1%, respectively [1]. The prevalence of depressive disorders was age-dependent with peak among older adult 55-74 years old (7.5% in women and 5.5% in men) [1]. Noticeably, there is an increasing trend in depression occurrence with 18.4% increase in 10-years period, from 2010 to 2015 [29]. An adjustment of the methodological variation between different studies was conducted and the adjusted global point prevalence of MDD was 4.7% [26]. This approach of adjustment to data heterogeneity is important in depression where diagnosis is subjective without a gold standard diagnostic tool.

Based on the data about global Disability Adjusted life years (DALY), the MDD and dysthymia were considered as 11th and 51th leading causes of disease burden in the world in 2010 [30]. However, based on Years of Life with Disability (YLDs), the MDD was the second leading cause after low back pain. Major depressive disorders accounted for 8.2% of all YLDs in the world [30]. Because the death is not so common in depressive disorders as other physical diseases, major depressive disorders and dysthymia contributed less to DALY which constituted of years lost due to death and years lost due to disability. Different epidemiological estimates of depression prevalence and incidence is affected by populations' characteristics, quality of health care and methodological aspects of the data collection and analysis.

Size of the problem in Saudi Arabia

The lack of accurate estimates of the depression, and mental illnesses as all, in Saudi Arabia is a real challenge for the public health interventions which targeting the psychological health [31]. With a population of approximately 34 million people subjected to rapid modernization and socio-demographic change, Saudi population is affected by rapid increase in chronic diseases including mental illnesses [32].

Alibrahim et al. conducted a systematic review for Saudi studies aiming at assessment of depression at either primary healthcare or community level [33]. The prevalence of depression in the included studies was very high and ranged from 39.1% to 76.6% [34, 35]. The overall risk ratio revealed that men have a significantly lower relative risk than women ($RR = 0.65$, $CI = 9.54$ to 0.80) [33]. Similar findings were reported by during screening of 477 participants in three large PHC centers, in the capital city, Riyadh [12]. Approximately, a half of the participants showed depressive symptoms based on Patient Health Questionnaires (PHQ), however the majority of the participants have mild symptoms. Female gender and higher educational level were found significantly associated with depression.

The reported prevalence by studies in Saudi Arabia reflected an extremely high occurrence of the depression, which highlights doubt about the validity of the diagnostic tools used in these studies. Thus, a study conducted by Aseri et al. attempted to assess the validity and reliability of a Hospital Anxiety and Depression scale after translation to Arabic language, and they found a fair internal consistency with 0.77 Cronbach's alpha. The prevalence of depression using this validated tool was only 27.7% which considered to be much lower than previous reported prevalence [36]. Moreover, a prevalence of 12% reported among patients from family medicine department in Southern region of Saudi Arabia. The majority of the patients were found to have minimal or mild depression using Hospital Anxiety and Depression scale. World Health Organization reported 4.5% prevalence rate and 9.5% of YLDs attributed to the depressive disorders in Saudi Arabia. In the absence of an accurate estimation in Saudi Arabia, the estimate of WHO remains the most recent, valid and reliable estimates about the prevalence and burden of depressive disorders in Saudi Arabia [1].

Depression determinants

Depression is a multifactorial disorder associated with dramatic change in the human life style from hunter-gathering through the agricultural lifestyle to the modern sedentary lifestyle [37]. This change has been associated with change in the pattern of diseases from infectious diseases to the chronic non-infectious diseases or what is called “diseases of modernity” such as cardiovascular diseases, diabetes, cancer and depression [7].

Analysis of the data from the previous decades showed increase in the occurrence of depressive disorders by approximately 18% every 10 years [29]. The possible explanations are the change in life style, socio-economic determinants and genetic factors. Additionally, it can be attributed to the overall increase in disorders associated with alcohol abuse and drugs addiction [38]. Cross-national studies revealed that the higher the socioeconomic status the higher the prevalence of depressive disorders [39].

Gender is the most robust significant predictor for depressive disorders. Medical literature seems to be consistent about association between depressive disorders and female gender. The relative risk of the depression among women is 1.5 to twofold higher than that among men [5]. However, this difference is age-dependent with similar rates of depression in both sexes before puberty [40], then become higher among women through adulthood then return to be approximately similar after 65 years old [41]. The peak age of depression incidence is between 14 and 25 years old in both sexes, while the peak of antidepressant prescription is >45 years old [42]. This pattern reflected the delay in the treatment of depression among young adults which can attributed to stigma, health seeking behavior, and underdiagnosis [43].

Other social determinants of depressive disorders include lower career satisfaction [44], food inadequacy, feeling helpless [45], life tragedies [46], lack of social networks [47], and loneliness [48].

Regarding effect of religious belief on mental health, there is a controversial if the depression precedes negative religious struggle or the depression is a result of religious disengagement. A study among orthodox Jews found that religious struggle

predispose for the future depression [49]. A study among Muslims showed religious-sociocultural treatment of depression to accelerate the response to therapy faster than that among patients received standard treatment only [50]. However, this difference disappeared after 6 months of treatment.

Recent studies investigated the genetic predisposition for depression after many studies showed the importance of genetic component in the etiology of certain mental diseases such as Schizophrenia [51]. Genome Wide Association Studies (GWAS) failed to find a purely genetic association with depressive disorders even in big sample sizes of ten thousand [8]. However, after establishment of the gene-environment interaction studies by Caspi et al., findings showed possible genetic-environmental association with depressive disorders. They analyzed data from 26- year prospective study and found that the length of polymorphism in the 5-HTT gene could interact with stress and elevate the odds of depressive disorders. This interactive association was found to be consistent with various depression outcomes including depression incidence, severity and suicidal ideation [52]. Etiology of depression is complex with multiple determinants acting through interactive manner between social, individual and genetic factors.

Screening of depression

Screening of the depression in clinical setting has been recommended to improve diagnosis and increase effectiveness of management. However, studies found contradicting results regarding the effectiveness of depression screening programs. Gilbody et al. found that that screening of depression did not improve the diagnosis or efficiency of treatment and only reduce recurrent rate of depression [53]. Similarly, the findings of a randomized controlled trial that compared screened patients versus non-screened patients revealed non-significant difference in health outcomes. However, a better health outcome was reported in screened patients compared to non-screened patients among the subgroup of patients who had depression at baseline [54]. The findings of a recent systematic review for 6 trials assessing the effectiveness of depression screening interventions among pregnant and postpartum mothers supported the effectiveness of the screening interventions in reduction of depression prevalence among screened women [55].

Furthermore, two other studies, which conducted intensive interventions to detect depression, reported effectiveness in improvement of health outcomes among screened patients. The intensive approaches include staff training, expert consultation, and multiple follow-up contacts [56, 57]. Thus, the effectiveness of the screening intervention depends on the good organization and proper monitoring of intervention rather than in the quality of the assessment study. Screening intervention should be cost-effective, however screening program for depression showed high cost in comparison to low benefit. The studies showed that intensive management intervention with incorporated screening component has more cost-effective and health related outcomes [58].

Consequences of undetected depressed patients

In primary healthcare, more than half of depressed patients are not diagnosed which can delay the diagnosis of this patients when the severity of the depression become more obvious [59]. Moreover, among depressive patients who underwent the treatment, only 42% treated sufficiently. Thus, we can postulate that among patients who attend primary healthcare, only 22% were treated adequately [59]. Other studies

reported no significant improvement among detected depressive patients in comparison to non-detected patients [60, 61].

The successful treatment can improve productivity, reduced absenteeism in the work or study, enhanced social relations and restoring of self-esteem [62]. Conversely, the inability to properly diagnose and adequately treat the depressed patients can lead to several social, economic, and physical consequences. The quality of life is severely compromised in the patients with depressive disorders with 28.9-year loss in Quality Adjusted Life Expectancy (QALE). Noticeably, this loss in quality of life is even greater than that reported of stroke (12.4 year loss), diabetes mellitus (11.1-year loss), and cardiovascular diseases (10.3 year loss) [63].

Many studies showed that the development of depression in the early-stage of life lead to termination of education. Major depressive disorders were found associated with 60% higher risk of drop-out from secondary school [64]. Additionally, the mental illness, including depression, was associated with low probability of being married and also related to very early marriage (<18 years old) [65, 66].

Regarding unemployment, most studies investigated the employment role as determinant for depression but not as an outcome. A significant association was reported between depression and unemployment in high-income countries, which reflected the inability of depressed patients to survive in high competitive work environment [67].

The impact of depression on physical health is well documented, since it was found related to various chronic diseases such as diabetes, asthma, hypertension, arthritis, cancer and heart diseases [68]. Depressive disorders lead to elevated incidence of these chronic diseases with subsequent increase in morbidity, mortality and financial costs. The physio-pathological mechanisms that make depression a significant predictor for these chronic diseases were explained in many studies [69, 70]. When depression is a consequence of the chronic diseases rather than a cause, these diseases usually associated with worse outcomes and poorer prognosis among depressed patients in comparison to those in non-depressed patients [71].

Depression is a common and highly burdensome disorder which required more investigation about the proper screening and intervention strategy. The proper detection and treatment of depression can lead to reduction of the morbidity, improvement in the quality of life, reduction in depression costs, and promotion of public health.

Attitudes towards depression in primary healthcare

Although general practitioners (GPs) may be able to identify depression, usually many patients remain untreated due to other causes than lack of clinical skills. It is possible that negative attitudes could influence treatment. The documented barriers contributed to the difficulty in diagnosis of the depressed patients in primary health care setting include lack of confidence, difficulty in communication and using interpreter services, and absence of sharing the same cultural background with the patient [72].

The participation of general practitioners in mental health training by general physicians was found to be related to their attitudes toward depressed patients and to their current level of confidence in diagnosis and treatment of the common mental disorders [73]. A cross sectional study among primary health care personnel revealed high gap of knowledge with less than 2% knew a standard tool used for the depression diagnosis. Furthermore, more than half of them have no previous training in mental health. Moreover, negative attitudes were reported among the majority of the physician, when two-thirds of the health personnel agreed that majority of depression cases originated from misfortune people and about 66% felt uncomfortable dealing with depressed patients [74].

An interventional study was conducted among general practitioners after assessment of various stigmatizing attitudes towards depression. At baseline, there were moderately positive attitudes towards suicide prevention but with lack of confidence to deal with depression and suicide. The training intervention was implemented and the improvement was assessed. The results showed improvement in the knowledge, confidence and attitudes towards depression, and suicide including their treatment

and prevention. However, in long term follow-up, only the confidence improvement to deal with suicide and depression was retained [75].

A study compared the attitudes to depression between general practitioners and psychiatrists using the depression attitude questionnaire. This study highlighted the need for educational interventions to improve detection and management of depression in primary care. The results revealed that general practitioners' attitudes significantly differed from psychiatrists' attitudes, particularly in domains addressing professional ease in dealing with depressive patients and obtaining proper diagnosis [76].

Regarding primary health care physicians, a survey found a negative attitude towards antidepressant treatment among 1504 physicians. Only 58% of primary care physicians believe that depressed people would benefit from taking an antidepressant [77]. Chinese primary care physicians were investigated about perceived barriers on depression management, A total of 295 physicians completed a 36-item survey by mail. The findings showed that most physicians (69.2%) were comfortably addressing psychological issues with their patients, which may be a result of reported previous training on mental health [78].

Furthermore, a double-blind, randomized controlled trial conducted among 111 primary care physicians to investigate the effect of training on the confidence and comfort in dealing with mental illness. A positive correlation was reported between increased levels of confidence or comfort and improvements in overall stigma, particularly among men [79]. Another study reported that 54% of primary care physicians felt moderately or very comfortable with depression management. In terms of perceived control over depression treatment, 75 % of them reported some or no difficulty in depression diagnosis and 82 % reported some or no difficulty to prescribe antidepressants. However, only 29% referred patients to psychotherapy interventions. In terms of depression management behaviors [80].

A descriptive cross-sectional study done in Riyadh, Saudi Arabia, 180 questionnaires at various hospitals were answered by physicians in the Riyadh Province of Saudi Arabia to study the current knowledge and attitude of physicians towards anxiety and

depression. Results showed that general practitioners and specialists have had a negative attitude towards psychiatric patients, in contrast to family practitioners who showed a positive attitude [81].

The quality of primary health care in Saudi Arabia was assessed based on criteria such as access and effectiveness of care. The access was good for immunization, prenatal care, and epidemic control, but the access to interventions targeting chronic diseases was found suboptimal. Additionally, a low referral rate was reported which hindered the access to specialist services [82]. The patients' satisfaction survey reported dissatisfaction regarding waiting time, working hours, and waiting places. An important barrier reported by the patients is the language barrier due to the presence of many non-Saudis healthcare personnel [83]. A considerable proportion of depressive patients are missed during the medical interview due to several factors that include physician stigma, doctor unawareness, overlap between physical and psychological symptoms, lack of doctor patient relationship, poor training and discomfort in addressing mental health concerns and duration of tenure [14, 15]. The incorporation of the screening system within primary health care system could contributed significantly to early detection and management of depressive disorders. Early treatment is usually associated with improved outcomes, reduced remission and decrease in disease burden.

Rationale for the study

A successful screening program in primary healthcare can be a cost-effective strategy for early detection of depression because it is the first line of contact between health system and the people. The primary care physician is a cornerstone in any screening or interventional program. The cost-effectiveness analysis of the screening program conducted in Saudi Arabia showed a saving of 500 SAR (133\$) per patient per 1-year screening [12]. Diagnostic studies revealed that primary care physicians or family physicians are over- or underdiagnose the depressive disorders [11]. Many attempts have been made to train or educate physicians in order to improve identification and diagnosis of depression. However, the outcomes of the training and educational interventions were disappointing [16, 17]. Thus, the problem of depression diagnosis may not be a result of knowledge gap or inadequate clinical skills in the primary care physicians. Instead, other explanations could be suggested such as the doctors' attitude, patients' stigma, and work load in the clinic.

This study aimed to explore the attitude of primary health care physicians in Dammam and AL Khobar area, Saudi Arabia towards depression using the Revised Depression Attitude Questionnaire (R-DAQ) [18]. This questionnaire revised using 3 rounds in the United Kingdom, the United States, Australia and European countries. The questionnaire has a good internal consistency with 0.84 Cronbach's alpha and satisfactory reliability [18]. The questionnaire has been validated in Saudi Arabia in a study conducted by Aldahmashi et al. [19]

Research question

What is the attitude of primary care physicians, in Dammam and Alkhobar, to depression as assessed by the Revised Depression Attitudes Questionnaire?

Aim

The overall aim of this study is to describe the attitudes towards depression among primary health care physicians in Dammam and al Khobar cities Saudi Arabia

Study objective

To assess the attitudes of primary care physicians to depression using Revised Depression Attitude Questionnaire (R-DAQ) in tow major cities, Dammam and Alkhobar, in Saudi Arabia.

Methodology

Study setting, aims and sampling procedure:

This study was a cross-sectional survey conducted on all PHC centers in AL Khobar and Dammam regions. The study population including the medical practitioners working in the PHC clinics of the Ministry of Health, the Kingdom of Saudi Arabia. The period of data collection was between July 01, 2019 to October 01, 2019.

All non-psychiatric medical practitioners working in 46 PHC centers (13 PHC centers in AL Khobar region and 33 PHC centers in Dammam region) were eligible to participate in this study. The total number of the medical practitioners were 220, all of them were targeted by this study. A total of 197 were responded to the questionnaire with response rate 89%.

The study variables

Dependent variable: Attitude of primary health care physicians toward depression

Independent variables: age, gender, marital status, nationality, job title, year of qualification, sector, country of medical training, post graduate training, specialty, years of experience, marital status, number of patients per working day, number of people presenting with depression each month, previous training in mental health, family member with depression, personal history of depression

Data collection tool:

The questionnaire used in this study was divided into 3 sections.

Section I contains questions about doctors' characteristic such as gender, age, marital status, nationality, job title, history of depression and familial history.

Section II contains questions related to (R-DAQ) scale which constitutes of 22-items.

Section III contains the informed consent (Appendix 2).

The R-DAQ scale revised throughout 3 rounds in the United Kingdom, the United States, Australia and European countries. The questionnaire has a good internal consistency with 0.84 Cronbach's alpha and satisfactory reliability [18]. This questionnaire was originally validated in large sample from European countries with Cronbach's alpha equal to 0.84 [18]. The validation of this questionnaire in Saudi respondents found a Cronbach's alpha of 0.76 which means fair internal consistency [19]. It incorporates various dimensions encompassing therapeutic optimism, professional confidence, and views about physicians' perspectives pertinent to depression and its care. Its use is unrestricted, as well as its distribution, and reproduction. The responses to the questions are in 5 categories Likert scale ranged from 1= strongly disagree to 5=strongly agree.

Data collection procedures:

Before data collection, an invitation was sent by the investigator to all PHC centers to participate in this study by letter, phone calls, and texting by using WhatsApp. The invitation letter contained information about rationale of the study, the privacy policy, and the questionnaire used in the study.

The data were collected by 4 trained interns who were informed about how to collect the data and from whom the data should be collected. The data collectors were instructed to meet the doctors if they are available otherwise, they handed over an envelope to be collected later. If they met the doctors, they explained the information about rationale of the study, the privacy policy, and the questionnaire used in the study. If they did not meet the doctor, an envelope containing an invitation letter, privacy policy and the questionnaire was delivered to be collected later on.

The doctors who were on vacation were put in a separate list to be visited when they are back to work. If no response the questionnaire was sent again with a proceeded call from the investigator to assure the desire for participation.

Statistical analysis

The data were coded and introduced into computer using Statistical Package for Social Sciences (SPSS version 23). All collected data were checked and cleaned from typing

errors. Data were analyzed according to the type of the variable. Descriptive statistics for categorical variables were presented using frequencies and percentages. The percentages of agreement were calculated for each item of R-DAQ. The Likert scale was dichotomized to agree category and disagree (or neutral) category to facilitate the presentation of the results in the tables. Additionally, this dichotomization facilitated the comparisons of our findings with the previous studies. The scores were calculated for each item, for each subscale, and for overall doctors' attitude. In the assessment of the scores for doctors' attitudes, items rephrased negatively were reversely coded to ensure that higher scores mean more positive attitude. The reversely coded items were (3, 4, 5, 6, 8, 9, 12, 13, 18, 20, 21).

The significant associations between doctors' characteristics and their attitudes towards depression were detected using t-test for binary variables, such as gender and nationality, and one-way ANOVA for multi-chotomus variables such as age group and job title. We used the multiple linear regression to model the association between the respondents' characteristics and their overall score of attitudes towards depression. With manually conducted backward method (general linear models) in order to exclude non-significant predictors using alpha level of 0.05. We included only variables showed significant associations in the bivariate analysis using t-test and ANOVA which were age, nationality, sector, job title, and mental training in the initial model. We presented also the value of R^2 to show the variation in attitude that could be explained by doctors' characteristics.

Ethical consideration

The approval and permission from the Ministry of Health Research Committee from Saudi Arabia , and the Ethical Committee approval from NOVA University ,Portugal were obtained before conducting the study .(Appendix 3, 4)

All participants were informed about their right to refuse participation in this study at any time, know the purpose of the study, respect their privacy, keep total confidentiality, and be reassured that it will not have any negative effect on them or their carrier.

Informed consents were obtained from each participant. The introduction to the questionnaire explained the purpose of the study and that all collected data from the participants would be used for research purposes only and handled with confidentiality.

This research was self-funded.

RESULTS

Table (1): Demographic and background characteristics of the respondents

Variables	Frequency	Percent (%)
Gender (n=197)		
Male	70	35.5
Female	127	64.5
Age group (n=196)		
<30	43	21.9
30-40	122	62.2
41-50	17	8.7
>50	14	7.1
Sector (n=195)		
Dammam	126	64.6
AL Khobar	69	35.4
Job title (n=196)		
General practitioner	85	43.4
Resident	76	38.8
Specialist	29	14.8
Consultant	6	3.1
Nationality (n=197)		
Saudi	163	82.7
Non-Saudi	34	17.3
Marital status (n= 194)		
Single	18	9.3
Married	169	87.1
Divorce or widowed	7	3.6
Previous training in mental health (n=195)		
Yes	88	45.1
No	107	54.9
Do you have any family members who have suffered from depression (n=197)		
Yes	10	5.1
No	187	94.9
Have you suffered from depression (n=197)		
Yes	2	1.0
No	195	99.0

Out of 197 participants included from PHC Centers in Al Khobar and Dammam regions, 35.5% are males and 64.5% are females. Most of the participants were 30-40 years old while only 7.1% were above 50 years old. About two thirds of the participants were selected from Dammam region because it is much larger than AL Khobar region where

more PHC centers found. About 83% of the participants are Saudis and 87.1% are married. Regarding the job title, 43.4% were general practitioners, while only 3.1% were consultants. Most of the participants (55%) reported no previous training in mental health. The history of previous depression in the participant or their family were negative in 99% and 95% respectively (table 1).

Table (2): Attitudes of the respondents towards depression scales based on the subscale of R-DAQ related to professional confidence in depression care (6 items)

Variables	Frequency	Percent (%)
Professional confidence in depression care		
1- I feel comfortable in dealing with depressed patients' needs (n=194)		
Agree	105	54.1
Neutral or disagree	89	45.9
7- I feel confident in assessing depression in patients (n=191)		
Agree	117	61.3
Neutral or disagree	74	38.7
8- I am more comfortable working with physical illness than with mental illnesses like depression (n=194)		
Agree	104	53.6
Neutral or disagree	90	46.4
11- My profession is well placed to assist patients with depression (n=195)		
Agree	113	57.9
Neutral or disagree	82	42.1
15- My profession is well trained to assist patients with depression (n=197)		
Agree	97	49.2
Neutral or disagree	100	50.8
17- I feel confident in assessing suicide risk in patients presenting with depression (n=194)		
Agree	88	45.4
Neutral or disagree	106	54.6

The above table showed that the depression scales were divided into three main subscales including professional confidence in depression care, therapeutic optimism/pessimism about depression, and generalist perspective about depression detection and management. Table 2 demonstrates the percentage of agreement to the item 1, 7, 8, 11, 15, 17 in the R-DAQ scale. The highest percentage of agreement was to the statement "I feel confident in assessing depression in patients" with 61.3% of the respondents agree to be confident. The confidence in detection of suicidal behavior in patients presenting with depression was the lowest in this subscale with only 45% agreed to be confident. More than half of the respondents (53.6%) were more comfortable to work with physical

illness than working with depression. About 58% and 49% found their profession is well placed and well trained to help patients with depression, respectively.

Table (3): Attitudes of the respondents towards depression scales based on the subscale of R-DAQ related to therapeutic optimism/pessimism about depression (10 items)

Variables	Frequency	Percent (%)
Therapeutic optimism/pessimism about depression		
3- Psychological therapy tends to be unsuccessful with people who are depressed (n=196)		
Agree	18	9.2
Neutral or disagree	178	90.8
4- Antidepressant therapy tends to be unsuccessful with people who are depressed (n=197)		
Agree	6	3.0
Neutral or disagree	191	97.0
5- One of the main causes of depression is a lack of self-discipline and will-power (n=192)		
Agree	86	44.8
Neutral or disagree	106	55.2
6- Depression treatments medicalise unhappiness (n=191)		
Agree	34	17.8
Neutral or disagree	157	82.2
9- Becoming depressed is a natural part of being old (n=194)		
Agree	38	19.6
Neutral or disagree	156	80.4
12- Becoming depressed is a way that people with poor stamina deal with life difficulty (n=195)		
Agree	85	43.6
Neutral or disagree	110	56.4
13- Once a person has made up their mind about taking their own life no one can stop them (n=192)		
Agree	53	27.6
Neutral or disagree	139	72.4
18- Depression reflects a response which is not amenable to change (n=194)		
Agree	29	14.9
Neutral or disagree	165	85.1
20- Becoming depressed is a natural part of adolescence		
Agree	29	14.8
Neutral or disagree	167	85.2
21- There is little to be offered to depressed patients who do not respond to initial treatments (n=196)		
Agree	31	15.8
Neutral or disagree	165	84.2

Table 3 shows the agreement percentages of the items related to the therapeutic optimism/pessimism about depression subscale. Most of the statements in this scale phrased negatively, so low percentages of agreement have been reported. The lowest percentage of agreement was 3% which was reported to the statement “antidepressant therapy tends to be unsuccessful with people who are depressed”. This was followed by statement of unsuccess of the psychological therapy among depressed patients with only 9.2% agreed to this statement. The highest agreement (44.8%) was reported to the statement “one of the main causes of depression is a lack of self-discipline and will-power”, followed by 43.6% agreement to the statement “becoming depressed is a way that people with poor stamina deal with life difficulty”. About 20% and 15% agreed that depression is normal among elderlies and adolescences, respectively. About 28% though that there is no way to stop person who have in mind the suicidal ideation.

Table (4): Attitudes of the respondents towards depression scales based on the subscale of R-DAQ related to generalist perspective about depression occurrence, recognition and management (6 items)

Variables	Frequency	Percent (%)
Generalist perspective about depression occurrence, recognition and management		
2- Depression is a disease like any other (e.g. asthma, diabetes), n=197		
Agree	162	82.2
Neutral or disagree	35	17.8
10- All health professionals should have skills in recognizing and managing depression (n=195)		
Agree	169	86.7
Neutral or disagree	26	13.3
14- People with depression have care needs similar to other medical conditions like diabetes, COPD or arthritis (n=195)		
Agree	160	82.1
Neutral or disagree	35	17.9
16- Recognizing and managing depression is often an important part of managing other health problems (n=197)		
Agree	178	90.4
Neutral or disagree	19	9.6
19- It is rewarding to spend time looking after depressed patients (n=194)		
Agree	119	61.3
Neutral or disagree	75	38.7
22- Anyone can suffer from depression (n=197)		
Agree	178	90.4
Neutral or disagree	19	9.6

Table 4 presents the agreement towards general aspects of depression where 90.4% of the respondents thought that depression can affect anyone and detection of depression is as important as other diseases. The necessity to acquire skills in detection and managing depression is approved by 86.7% of the respondents. In addition, about 82% identify that depressed patients have similar needs to those in other chronic diseases such as diabetes mellitus. However, only 61% found it rewarding to consume time taking care of depressed patients.

Table (5): Scores of the respondents' attitudes towards depression based on 22 items of the R-DAQ (1 =strongly negative to 5= strongly positive)

<i>Items</i>	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
<i>Professional confidence in depression care</i>	182	9.0	30.0	19.9	4.2
8 – I am more comfortable working with physical illness than with mental illnesses like depression (R)*	194	1.0	5.0	2.6	1.0
1 – I feel comfortable in dealing with depressed patients' needs	194	1.0	5.0	3.5	1.0
11 – My profession is well placed to assist patients with depression	195	1.0	5.0	3.6	1.0
7 – I feel confident in assessing depression in patients	191	1.0	5.0	3.6	1.0
15 – My profession is well trained to assist patients with depression	197	1.0	5.0	3.3	1.1
17 – I feel confident in assessing suicide risk in patients presenting with depression	194	1.0	5.0	3.3	1.1
<i>Therapeutic optimism/pessimism about depression</i>	177	20.0	50.0	35.0	5.2
5 – One of the main causes of depression is a lack of self-discipline and will-power (R)	192	1.0	5.0	2.8	1.1
12 – Becoming depressed is a way that people with poor stamina deal with life difficulties (R)	195	1.0	5.0	2.9	1.1
9 – Becoming depressed is a natural part of being old (R)	194	1.0	5.0	3.6	1.1
6 – Depression treatments medicalize unhappiness (R)	191	1.0	5.0	3.3	0.9
21 – There is little to be offered to depressed patients who do not respond to initial treatments (R)	196	1.0	5.0	3.6	1.0
20 – Becoming depressed is a natural part of adolescence (R)	196	1.0	5.0	3.7	1.0
3 – Psychological therapy tends to be unsuccessful with people who are depressed (R)	196	1.0	5.0	4.0	0.9
18 – Depression reflects a response which is not amenable to change (R)	194	1.0	5.0	3.4	0.9

4 – Antidepressant therapy tends to be unsuccessful with people who are depressed (R)	197	1.0	5.0	4.2	0.7
13 – Once a person has made up their mind about taking their own life no one can stop them (R)	192	1.0	5.0	3.4	1.1
Generalist perspective about depression occurrence, recognition and management	190	15.0	30.0	24.7	3.2
16 – Recognizing and managing depression is often an important part of managing other health problems	197	1.0	5.0	4.3	0.7
22 – Anyone can suffer from depression	197	1.0	5.0	4.3	0.8
10 – All health professionals should have skills in recognizing and managing depression	195	1.0	5.0	4.3	0.9
19 – It is rewarding to spend time looking after depressed patients	194	1.0	5.0	3.7	0.9
14 – People with depression have care needs similar to other medical conditions like diabetes, COPD or arthritis	195	1.0	5.0	4.1	1.0
2 – Depression is a disease like any other disease (e.g. asthma, diabetes)	197	1.0	5.0	4.0	1.0
Overall score	167	59.0	110.0	79.9	9.1

*(R) = Reversed coding

Table 5 demonstrates the scores of the respondents' attitudes towards depression based on 22 items of the R-DAQ (1 =strongly negative to 5= strongly positive). Due to "reverse coding" used in some items during calculation of the scores, we will replaced be the agreement by positivity and disagreement by negativity during interpretation of these scores. The minimal overall score was 59.0 and the maximum was 110 with mean (SD) equals to 79.9 (9.1). The overall score can be divided into 5 categories (1-22 =strongly negative, 23-44= negative, 45-66= neutral, 67-88= positive, 89-110 = strongly positive). The mean overall score of the PHC participants is in the middle of positive attitude category in the scale. Thus, we can say that our participants general have a positive attitude towards depression. Similarly, all other subscales of professional confidence, therapeutic optimism and generalist perspective of depression had means located in the positive attitude of their subscales. Regarding individual items, the items of general

perspective about depression scored higher values than other items. Items about importance of depression detection, depression can affect anyone, the importance of the skills in detection and treatment of depression have scored a mean of 4.3 (between positive and strongly positive). Moreover, items such as depression is like any other chronic diseases and depression have similar needs to these chronic diseases scored a mean of 4.0 and 4.1 in the Likert scale.

The lowest score was reported to the item about feeling more comfortable working with depression compared to physical illness, in the professional confidence subscale, with mean score of 2.6 (between negative and neutral attitude). Other items with low scores were in the subscale of therapeutic optimism. Items stated that becoming depressed was considered as a way that people with poor stamina deal with life difficulty or due to lack of self-discipline scored only 2.9 and 2.8, respectively.

Table (6): Association between the respondents' characteristics and their attitudes towards depression using independent t-test

The characteristics of the respondents	Attitudes of the respondents			
	Mean overall score	Mean score of professional confidence	Mean score of therapeutic optimism	Mean score of generalist perspective about depression
Gender				
Male	80.0	19.7	35.2	24.5
Female	79.8	19.9	35.0	24.8
P value	0.913	0.719	0.808	0.626
Nationality				
Saudi	80.9	19.9	35.8	24.9
Non-Saudi	74.8	19.8	31.2	23.6
P value	0.001*	0.884	<0.001*	0.031*
Sector				
Dammam	79.0	19.4	34.4	24.9
Al Khobar	81.5	20.7	36.3	24.5
P value	0.110	0.031*	0.021*	0.378
Previous training in mental health				
Yes	83.6	21.4	36.6	25.6
No	76.9	18.5	33.8	24.0
P value	<0.001*	<0.001*	<0.001*	0.001*

*Statistically significant difference

Table 6 presents the detection of significant associations between respondents' characteristic and their attitudes towards depression using independent t-test. There were no significant differences between males and females in regards to the mean scores of attitudes towards depression, including overall scores or other subscales scores.

Saudi health workers had significantly higher scores (more positive attitudes) towards depression than non-Saudi health workers. The significant differences reported in overall scores and subscales of therapeutic optimism and generalist perspective about depression ($P < 0.005$).

The health workers in AL Khobar had higher scores (more positive attitudes) than those working in Dammam region in overall or subscale scores. However, the significant differences were detected only in professional confidence and therapeutic optimism subscales. The respondents who had previous training in mental health recorded higher significant scores in either overall or subscales of depression questionnaire.

Table (7): Association between the respondents' characteristics and their attitudes towards depression (using One-way ANOVA)

The characteristics of the respondents	Attitudes of the respondents			
	Mean overall score	Mean score of professional confidence	Mean score of therapeutic optimism	Mean score of generalist perspective about depression
Age group				
<30	81.0	19.1	36.2	25.7
30-40	80.4	20.2	35.2	24.6
41-50	76.8	20.3	33.8	23.5
>50	73.3	18.2	30.5	23.8
P value	0.057	0.256	0.010*	0.063
Job title				
General practitioner	75.7	18.4	33.4	23.8
Resident	82.2	20.5	35.9	25.4
Specialist	85.8	21.9	37.1	25.9
Consultant	85.5	24.0	38.3	23.5
P value	<0.001**	<0.001**	0.002**	0.001**

*Significant difference between >50 years old and each of <30 and 30-40 years old (using Tukey post-hoc test).

**Significant differences found between general practitioners and other job titles.

Table 7 demonstrates the associations between the respondents' characteristics and their attitudes towards depression using One-way ANOVA. Generally, younger age groups have higher scores (more positive attitudes) than older age groups. The comparisons between

means scores of attitudes between age groups revealed the presence of a significant difference only in the therapeutic optimism subscale ($p = 0.010$). Using Tukey post-hoc test, a significant difference in the attitude was detected between >50 years old and each of <30 and 30-40 years old.

About job title, the scores were lower in the general practitioners than those in all other job titles (residents, specialists, and consultants). Using Tukey post-hoc test, significant differences in the attitudes were found between general practitioners and all other job titles (≤ 0.001).

There were no significant differences in the attitudes scores in regards to the other characteristics such as marital status and years of experience.

Table (8): Multiple linear regression modeling for the association between the respondents' characteristics and their overall score of attitudes towards depression

Predictors	F	P value
Model 1		
Intercept	3363.394	0.000
Age	2.248	0.085
Nationality	1.046	0.308
Sector	.231	0.632
Job title	9.925	0.000
Mental training	9.673	0.002
R Squared = 0.322 (Adjusted R Squared = 0.282)		
Model 2		
Intercept	3623.481	0.000
Age	2.399	0.070
Nationality	.968	0.327
Job title	10.335	0.000
Mental training	9.609	0.002
R Squared = 0.317 (Adjusted R Squared = 0.282)		
Model 3		
Intercept	3896.325	0.000
Age	5.045	0.002
Job title	10.612	0.000
Mental training	10.598	0.001
R Squared = 0.313 (Adjusted R Squared = 0.283)		

In table 8 We used the multiple linear regression to model the association between the respondents' characteristics and their overall score of attitudes towards depression with manually conducted backward method (general linear models) in order to exclude non-significant predictors using alpha level of 0.05. We included only variables showed significant associations in the bivariate analysis using t-test and ANOVA which were age, nationality, sector, job title, and mental training in model (1). In model (2) and (3), the age and nationality had non-significant p values. Thus, they were excluded from the model (3) with only age, job title and mental training were identified as significant predictors for the attitudes towards depression among health workers in PHC centers. The adjusted R² of 0.28 means that these three predictors accounted for 28% of the changed in attitudes of the health workers.

DISCUSSION:

This study can be considered one of few studies that attempts to assess the attitudes towards depression care among doctors working in PHC centers in Saudi Arabia. A similar study was conducted to assess these attitudes among non-psychiatric doctors working in main hospitals located in Riyadh city [19]. The response rate in this study was as high as 89% is and can therefore be considered representative of doctors working in Saudi PHC centers

The depression questionnaire was divided into three main subscales during analysis. These subscales including professional confidence in depression care, therapeutic optimism about depression, and generalist perspective about depression management. Generally, we found a slightly positive attitudes of the PHC doctors towards depression care either in overall scale or in the subscales. However, the most common confounding factor that affect the result of studies which depend on self-assessment is what called “social desirability”. It means the situation when answers of the respondents don’t reflect the truth but reflect the perceived ideal practice [84]. Despite of this expected positivity, our findings revealed many items which have been associated with a considerable negativity. This highlighted the importance of this study in detection of negative attitudes which could be barriers for proper diagnosis and treatment of depression. For instance, the confidence in detection of suicidal behavior in patients presented with depression was the lowest in the confidence subscale with only 45% agreed to be confident. Additionally, more than half of the respondents (53.6%) were more comfortable to work with physical illness than working with depression. Moreover, about 42% and 51% were not sure that their profession is well placed and well trained to help patients with depression, respectively. Similar findings reported in doctors work in Riyadh specialized hospitals, which may suggest the consistency of such unfavorable attitudes in the different levels of Saudi Health system [19].

The present study revealed a relatively negative attitudes in certain items such as: depression is a constitute of will-power and poor stamina with agreement percentages 44% and 44%, respectively. These findings were not so different from those reported among Riyadh doctors, where 48.1% and 37.6% agreed with these items, respectively [19].

However, much higher findings reported by a cross-sectional study conducted among 601 medical practitioners working in 6 major hospitals in Pakistan [85]. About 67% and 57% agreed that depression is a result of will-power insufficiency and lack of stamina, respectively [85]. Different attitudes reported in a developed country such as Japan with only 12% agreement to the statement of depression is a result of poor stamina among non-psychiatric medical doctors [86]. These unfavorable attitudes can lead to potential stigma by doctors who blame the patients of being depressed. Furthermore, these attitudes can reduce the attention and empathy during diagnosis and treatment of the depressive patients, particularly those patients who are irresponsive to the initial treatment. Another misconception which can lead to underdiagnosis and inadequate treatment is the perception of depression as a normal consequence of aging. Different findings reported for the responses regarding relation between depression and aging among Riyadh doctors, where 33% agreed that depression is normal condition among the elderly [19], while only 20% agreed to this misconception in the present study. In the study that recruited Pakistani medical practitioners, about 43% of them agreed that depression is a part of the natural aging process [85]. However, a very low agreement to this misconception was found among Japanese medical doctors when only 10% agreed that depression is a natural part of aging process [86]. This level of awareness is expected in the developed countries.

However, sometimes, it is unclear if these negative responses are representing doctors' attitudes or they are consequences of inadequate training in mental health. We found doctors who had no previous training in mental health have lower significant scores in either overall or subscales of depression questionnaire. Therefore, the effect of knowledge gap due to lack of training could contribute significantly to the negative attitudes towards depression care.

In the present study, a high percentage of agreement was found to the statement "I feel confident in assessing patients with depression" with 61.3% of the respondents agreed to be confident. A study conducted among specialized hospitals in Riyadh found a higher rate of confident doctors (77.8%) [19], while only a half of Pakistani medical practitioners felt confident [85]. This could be attributed to the higher level of general medical training

expected in specialized hospitals than that in PHC centers. However, the least confidence was reported in item of detection of suicidal ideation which is quite similar to the findings of the present study (45%). Furthermore, a lower confidence level in detection of suicidal ideation was reported among Pakistani medical practitioners with only 37% felt confident [85].

Thus, we can postulate that non-psychiatric medical practitioners have low confidence in their ability to detect suicidal ideation, either in PHC centers or in specialized hospitals. In the present study, more than half of the respondents were more comfortable to work with physical illness than working with depression. Similar finding was reported among Pakistani medical practitioners with 59.2% felt more comfortable with physical diseases rather than mental problems [85]. A striking finding reported in Japanese medical doctors with no one agreed to be comfortable in dealing with depression care, and 60% found depression care is heavy going [86]. Thus, dealing with depression became a heavy burden on Japanese medical doctors, because they thought that depression care is beyond their role. This difference between Japanese doctors and our findings could be attributed to the differences in the health systems. Another explanation for this difference is using of convenient sampling in Japanese study by selecting volunteer doctors attending workshop about depression care. Perhaps, doctors attending this workshop are those who feel that depression care is heavy or difficult issue.

In the present study, about 28% were not optimistic about the way to stop person who have in mind the suicidal ideation. A much lower percentage of agreement found in the study of Aldahmashi et al., with only 8.7% off the respondents agree about this statement [19]. However, the respondents of the present study were more optimistic in many other items when only 3% agreed about the inefficiency of antidepressant in treating depression.

Additionally, they were optimistic towards the psychological therapy for the depressed patients, with only 9.2% agreed to the statement of the inefficiency of this treatment. Similar findings reported by Aldahmashi et al. in regards to inefficiency of the psychological therapy with 12.4% agreement percentages [19]. Moreover, they found quite similar results to our results in the items of unnameability of depression to change

and the loss of hope if the initial treatment failed with agreement percentage 12.1% and 19.2%, respectively [19]. Similarly, only 8.6% and 13% of Pakistani medical practitioners agreed that antidepressant or psychological therapy are useless, respectively. Furthermore, about 19% of these medical practitioners thought that depression has no amenability to change [85]. These results are consistent with findings reported among Japanese non-psychiatric medical practitioners, where 11% thought that psychotherapy seems to be ineffective [86].

General positive attitudes were reported towards general aspects of depression in the present study. All items, except for feeling rewarding to spend time on depressed patients, had more than 80% agreement percentage. These items include: the depression can affect anyone, and importance of depression as other chronic diseases. Similar high positive agreement (> 80%) were reported among doctors working in Riyadh [19], as well as in Pakistani medical practitioners [85]. However, only 61% of the participants in the present study found it rewarding to consume time taking care of depressed patients. A lower percentage reported among Japanese medical doctors with 44% found it rewarding to take care of patients with depression [86].

In the present study, the mean overall score of the PHC participants is located in the middle of positive attitude category in the scale, which indicated tendency to general positive attitudes towards depression care among doctors in PHC centers. Similar findings reported by a study conducted among non-psychiatric doctors working in many specialized hospital in Riyadh city [19]. The investigators used R-DAQ to assess the doctors' attitudes towards depression care. They found a slightly positive attitude with mean (SD) of R-DAQ score equal to 76 (8.3), which is slightly lower than the mean reported by this study 79.9 (9.1).

The findings of the present study regarding all other subscales of professional confidence, therapeutic optimism and generalist perspective of the depression care had means located in the positive attitude of their subscales slightly higher than neutral. These findings are in agreement with those among French family medicine doctors who showed generally positive attitudes towards depression care [87]. Aldahmashi et al. found quite similar scores of in professional confidence and therapeutic optimism towards depression care with means (SD) of 21.8 (4.5) and 34.7 (5.2), respectively [19]. However, the mean of

generalist perspective towards depression care was 20.1 which slightly lower than the score reported in the current study (24.7). Despite of the different setting where their participants recruited from specialized hospitals rather than PHC centers, there were similar study populations in term of age and job title. This similarity in study population and in methods of data collection and analysis could justify the comparable findings.

The association between attitudes and doctors' characteristics:

The present study found no significant differences between male and female doctors in regards to the mean scores of attitudes towards depression, including overall scores or other subscales scores. This non-significant association between attitude and gender was also reported among Pakistani medical practitioners [85]. Differently, Aldahmashi et al. found male doctors significantly more confident in the depression management than female doctors [19]. This difference could be explained by the difference in gender composition since the percentage of males in this study was twofold higher than that in the present study, where only 35.5% were males. The second reason is the inclusion of a military hospital where dominance and confidence are required and expected to be higher in males doctors than in females doctors [19]. A study conducted in Japan found female doctors less confident in many competency skills than male doctors after adjustment of age and training opportunities. However, the authors assessed the confidence in medical competencies as general and not specifically focusing in depression [88]. Lind et al. found a higher performance of female medical students in achieving important tasks in comparison to males counterparts. However, they found also female students underestimated their self-performance when compared to the males [89]. Thus, the objective assessment could be different from the subjective assessment which highly applicable in studies depend on the questionnaires.

A pooled analysis, of the studies using DAQ in European countries, found females GPs more likely to feel difficulty in differentiation between unhappiness and depression. However, this item was deleted in the revised form of questionnaire R-DAQ that has been used in this study [90].

Saudi doctors had significantly higher scores (more positive attitudes) towards depression than non-Saudi doctors. The significant differences between Saudis and non-Saudis

reported in overall scores and subscales of therapeutic optimism and generalist perspective about depression. This could be attributed to the receiving of previous training in mental health. In the present study, about half of Saudi doctors receive training in comparison to only 29% of non-Saudi doctors. The doctors in AL Khobar had higher scores (more positive attitudes) than those working in Dammam region in overall or subscale scores. However, the significant differences were detected only in professional confidence and therapeutic optimism subscales. This could be explained by the receiving of previous training in mental health because more doctors received training in the Al Khobar region (53%) than those in Dammam region (41%). Similarly, the receiving of psychiatric course was significantly associated with greater clinical confidence in dealing with depression care among Pakistani medical practitioners [85]. The receiving of training in mental health was also significantly associated with professional ease in dealing with depression care among French family medicine doctors [87]. The confounding effect of “previous mental training” among PHC doctors was adjusted in the multiple linear regression. We included only variables showed significant associations in the bivariate analysis using t-test and ANOVA which were age, nationality, sector, job title, and mental training in the initial model. However, nationality and sector were excluded from the final model.

Only age, job title and previous mental training were identified as significant predictors for the attitudes towards depression among health workers in PHC centers. The adjusted R^2 of 0.28 means that these three predictors accounted for 28% of the changed in attitudes of the health workers. Thus, future studies can investigate other predictors which may be associated with attitudes of PHC doctors.

In the present study, significant differences in the attitudes were found between general practitioners and all other job titles (residents, specialists, and consultants). In contrast to our findings, pediatricians worked in Riyadh hospitals showed lower confidence in detection of depression than that reported by general practitioners [19]. This could be explained by the fact that some specialties, such as pediatric medicine, may have low experience in dealing with depression or find it so difficult to detect depression in the children.

The attitudes towards depression and mental illness in general are influenced by cultural and religious factors even among participants with medical background. A cross-sectional study in the UK recruited 760 medical students found that students of Asian background have more negative and stigmatizing attitudes towards mental illness in comparison to the students from White British background [91]. A survey conducted in many medical colleges in Pakistan found negative attitudes towards depression expressed by more than half of the students [92]. These negative attitudes among Pakistani medical students were more prominent than those found in this study, and even more than negative attitudes reported among general population in the UK [93].

This study used R-DAQ questionnaire which was originally validated in large sample from European countries with Cronbach's alpha equal to 0.84 [18]. The validation of this questionnaire in Saudi respondents found a Cronbach's alpha of 0.76 which means fair internal consistency [19]. This difference in internal consistency could be related to cultural differences between populations.

Limitations:

- The cross-sectional design that was selected in this study has a risk of biased results if the sample were not representative to all non-psychiatric physicians working in PHC. If the physicians from other regions in Saudi Arabia were included that would enhance the generalizability of the findings.
- Another option is using of the cluster sampling and selection of doctors randomly from certain areas. However, if the cluster sampling was selected, larger sample of doctors would need to be recruited.
- The 'social desirability' is an important confounding factor in this study which may lead to over-estimation of positive attitudes towards depression. Despite this expected over-estimation, many negative attitudes were successfully detected.
- This study assessed the attitude of doctors but the link between attitudes and doctors' beliefs were not assessed.
- Many misconception and myths, which are related to cultural and religious factors, could influence the attitude of doctors towards depression.
- Although the questionnaire was validated in Saudi Arabia with a good overall Cronbach's alpha however one of the subscales (general) had a Cronbach's alpha of 0.57 and may not be valid in this population.

Conclusions:

Based on the findings of this study we can conclude the following:

- Medical practitioners in PHC centers have generally slightly positive (more than average) attitudes towards depression care
- Young age physician, not being GP, and presence of previous training were related to positive attitudes towards depression care.
- Many negative attitudes were found regarding clinician comfort in working in depression care and feeling confident in diagnosis of depression or suicidal ideation.

Recommendations:

Based on the findings of this study we can conclude the following:

- The establishment of a training intervention aimed at improving the professional confidence of PMC's physicians in dealing with depression, particularly confidence in the assessment and management of suicidal ideas, physical mental comorbidities, and correction of misconception and myths about depression .
- As younger clinicians were more likely to have more positive attitudes towards depression care compared to older clinicians especially those who were GP's, interventions should focus on older physicians who had no or little previous training on mental health, especially those who are general practitioners.
- Conducting qualitative research to explore the reasons behind misconceptions about depression care among PHC's physicians is recommended.
- The association between cultural misconceptions and attitudes may be addressed in the future research.

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Appendix 1 : information leaflet

Information Leaflet

Introduction

My name is Dr Sarah Aldossary and I am a family physician in primary health care centers in Dammam city. I am conducting a survey to find out the attitude of primary health care physicians towards depression.

I am doing this study because I want to get a better picture about the attitude of physicians towards depression as part of my master's degree program

Many depression cases are missed during the medical interview due to several factors that include physician Stigma, doctor unawareness, overlap between physical and psychological symptoms, lack of doctor patient relationship, poor training and discomfort in addressing mental health concerns and duration of tenure.

If depression is undetected this may lead to several patient unpleasant consequences, which increases the chance of risky behaviors like drug addiction and alcohol abuse, suicidality, poor relationships, inability to overcome illnesses.

Sometimes attitudes towards depression may also affect the care people receive from physicians.

The information I gather from this survey will allow me to find out the primary health care physicians attitude .

Your participation is entirely voluntary.

Scope of Survey

My overall aim is to find the attitude of primary health care physicians towards depression.

I hope to identify the physician attitude toward depression in patient using the revised depression attitude questionnaire

The results of this survey will enable me to promote mental health care.

This study is in one stage and will recruit working primary care physicians including all working physician in the primary health care, general practitioner resident, specialist, consultants.

The questionnaire survey will take about 15-30 minutes to complete, handled personally and participation is completely voluntary

FREQUENTLY ASKED QUESTIONS

Q. How long will I have to decide whether to take part in the research?

A. three months

Q. What arrangements have been made if I do not adequately understand verbal explanations or written information given in English, or if I have special communication needs?

A. If you would like to take part in this study and you are unable to provide consent to participate in this study because of communication needs feel free to call or send me an email so that I can arrange support for you

Q. Will I receive any payments for taking part in this research?

A. No, taking part in this survey is entirely voluntary

Q. What measures have been put in place to ensure confidentiality of my personal data?

A. Your data will be stored anonymously, and it will be coded and password protected.

Q. How will the results of research be made available to me and my community?

A. The results will be published in one of the medical journals after I have defended my MSc research at NOVA University, Lisbon, Portugal.

FAQ

Phone: 00966503800273

E-mail: drdr_ss24@yahoo.com

EBN-ROSHD MEDICAL CENTER

1(c) STREET

Dammam

Contacts

If you would like more information about the information contained in this leaflet, please ring me, Dr Sarah Aldossary on 00966503800273.

You can also write to me at the postal address below:

**Dr Sarah Aldossary
SARAH ALDOSSARY
EBN-ROSHD MEDICAL CENTER
1(c) STREET
Dammam
Telephone: 00966138055646
Mobile: 00966503800273
Email: drdr_ss24@yahoo.com**

The information you provide will be confidential and sensitively managed

Appendix 2:

STATEMENT OF CONFIDENTIALITY

THE IDENTIFICATION NUMBER AT THE BOTTOM OF THIS PAGE ALLOWS US TO KEEP TRACK OF THE QUESTIONNAIRES AS THEY ARE RETURNED. ANY INFORMATION THAT WOULD PERMIT IDENTIFICATION OF AN INDIVIDUAL OR A PRACTICE OR TRUST WILL BE HELD STRICTLY CONFIDENTIAL. WILL BE USED ONLY FOR THE PURPOSE OF THIS STUDY, AND WILL NOT BE DISCLOSED OR RELEASED TO OTHER PERSONS OR USED FOR ANY OTHER PURPOSE

THE ATTITUDE TOWARDS DEPRESSION AMONG PRIMARY HEALTH CARE PHYSICIANS IN DAMMAM AND ALKHOBAR AREAS, EASTERN PROVINCE, SAUDI ARABIA

My name is Dr SARAH ALDOSSARY and I am a family medicine specialist in ministry of health, Dammam primary health care centres. I am doing a survey to describe the attitudes towards depression among primary health care physicians in Dammam and al Khobar cities Saudi Arabia

If you would like to help me with this task, please complete the attached anonymous questionnaire.

Your participation is voluntary and anonymous. You have the right to refuse participation at any time.

Each questionnaire takes between 15-30 minutes to complete.

The information you provide will be confidential and sensitively managed.

If you would like further information about this project, please contact:

SARAH ALDOSSARY
EBN-ROSHD MEDICAL CENTER
1(c) STREET
Dammam
Telephone: 00966138055646
Mobile: 00966503800273
Email: drdr_ss24@yahoo.com

For Office Use

ID CODE

Part one: Personal information

- Gender: ☐ M ☐ F
- Age groups: ☐ <30 ☐ 30-40 ☐ 41-50 ☐ >50
- Nationality: ☐ Saudi ☐ non - Saudi
- Sector: ☐ Dammam ☐ Khobar
- Country of medical training (.....).
- Year of qualification (.....) in Gregorian date eg: 1980
- Additional post graduate training and qualifications:
- Job title: ☐ General practitioner ☐ resident ☐ specialist ☐ consultant
- Specialty ☐ family medicine, ☐ other specify
- Years of experience: ☐ 0-3 years ☐ >3-5 years ☐ >5-10 years ☐ >10 years
- Marital status: ☐ Single ☐ Married ☐ Divorce ☐ Widow
- Number of patients / working day: ☐ 10-20 ☐ 21-30 ☐ 31-40 ☐ 41-50
☐ 51-60 ☐ >60
- Number of depressed patient seen/month: (.....) Patients
- Have you ever received a previous training in mental health: ☐ Yes ☐ NO
- Do you have any family members who have suffered from depression : ☐ Yes ☐ NO
- Have you suffered from depression: ☐ Yes ☐ NO

Revised Depression Attitude Questionnaire

	Please read the statement and tick/click the box that relates best to your personal opinion	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I feel comfortable in dealing with depressed patients' needs					
2	Depression is a disease like any other (e.g. asthma, diabetes)					
3	Psychological therapy tends to be unsuccessful with people who are depressed					
4	Antidepressant therapy tends to be unsuccessful with people who are depressed					
5	One of the main causes of depression is a lack of self-discipline and will-power					
6	Depression treatments medicalise unhappiness					
7	I feel confident in assessing depression in patients					
8	I am more comfortable working with physical illness than with mental illnesses like depression					
9	Becoming depressed is a natural part of being old					
10	All health professionals should have skills in recognising and managing depression					
11	My profession is well placed to assist patients with depression					
12	Becoming depressed is a way that people with poor stamina deal with life difficulties					
13	Once a person has made up their mind about taking their own life no one can stop them					
14	People with depression have care needs similar to other medical conditions like diabetes, COPD or arthritis					
15	My profession is well trained to assist patients with depression					
6	Recognising and managing depression is often an important part of managing other health problems					
7	I feel confident in assessing suicide risk in patients presenting with depression					
8	Depression reflects a response which is not amenable to change					
9	It is rewarding to spend time looking after depressed patients					
0	Becoming depressed is a natural part of adolescence					
1	There is little to be offered to depressed patients who do not respond to initial treatments					
22	Anyone can suffer from depression					

Consent Statement-

1. I confirm that I have read and understand the information sheet for the study **The attitude towards depression among primary health care physicians in Dammam and AL Khobar areas, eastern province, Saudi Arabia.**
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
3. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected
4. I agree to take part in the above study.

Signed

Dated

Appendix 3:

المملكة العربية السعودية
وزارة الصحة
الوكالة المساعدة للتخطيط والتميز المؤسسي
الإدارة العامة للبحوث والدراسات

وزارة الصحة
Ministry of Health

11-03-2019 04-07-1440
1440-1398462

الموضوع: بحث الطالبة/ سارة الدوسري.

سعادة/ مدير عام الشؤون الصحية بالمنطقة الشرقية
المحترم

السلام عليكم ورحمة الله وبركاته،،،،

إشارة إلى موضوع الطالبة/ سارة عثمان الدوسري، المبتعثة على حسلها الخاص لدراسة درجة الماجستير في تخصص " الرعاية النفسية الأولية " بكلية نوحا الطبية جامعة نوحا بالبرتغال، رقم السجل المدني (١٠٠٢٨٣٣٧٢)، وعنوان البحث: " سلوك أطباء الرعاية الصحية الأولية تجاه الإكتئاب في الدمام والخبر، المنطقة الشرقية ، المملكة العربية السعودية "

نحيطكم علماً بأن الطالبة قد إستوفت كافة المستندات المطلوبة وتمت مراجعتها من قبل اللجان المعنية بالإدارة العامة للبحوث والدراسات ولجنة الأخلاقيات المركزية بوزارة الصحة، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث، وحيث أن الطالبة ستنفذ دراستها في مراكز الرعاية الصحية الأولية بالخبر والدمام بالمنطقة الشرقية.

وعليه، نأمل من سعادتكم التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمتها بعد موافقة الجهات المختصة لديكم ، لجمع البيانات اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين خلال قيامها بمهام بحثها، مع العلم بأن وزارة الصحة تضمن حقوقها في نتائج هذا البحث من خلال إتفاقية المشاركة في البيانات والتي تم توقيعها بين الطالبة والإدارة العامة للبحوث والدراسات.

وتفضلوا بقبول خالص تحياتي ،،،،

مرفق مستندات وملخص المقترح البحثي،،،،

مدير عام الإدارة العامة للبحوث والدراسات

ص. عذاري بنت فيصل العتيبي

e-mail: research@moh.gov.sa

Kingdom of Saudi Arabia
Ministry of Health
Central IRB
GDRS



المملكة العربية السعودية
وزارة الصحة
اللجنة المركزية لأخلاقيات البحوث
الإدارة العامة للبحوث والدراسات

اللجنة المركزية لأخلاقيات البحوث بوزارة الصحة

Central Institutional Review Board

National Registration Number with NCBE-KACST, KSA: (H-01-R-009)

Approval Letter

Date: 10/03/2019

Central IRB log No: 2019-0014M

Category of Approval: Exempt

Affiliation: Dammam

Dear Sarah Aldosary

The Central IRB-MoH pleased to inform you that submission dated 20/02/2-19 for the study mentioned below was reviewed and approved.

Protocol Title	The attitude towards depression among primary health care physicians in Dammam and Alkhobar areas, Eastern province, Saudi Arabia
Principal Investigator	Sarah Othman Aldosary
Affiliation	PHC-Dammam
Documents Reviewed	Study proposal, CV, Request for exempt status, PI statement, signed consent form, MOH data base information, signed Data Share Agreement, Questionnaire A, NIH certificate

Decision:

The Central IRB **was approved** the protocol according to ICH-GCP. Approval is given for **one year** from the date of this letter.

Approval Conditions:

- Abide by the rules and regulations of the Government of Saudi Arabia, NCBE, Central IRB and the IHC-GCP guidelines.
- To conduct research as per the approved documents.
- Research participant confidentiality should be protected at all times.
- All researchers are required to have current and valid certificate on Protecting Human Research Participants (NIH or NCBE certificate).
- Amendment to the approved documents, the Principal Investigator is required to advise the Central IRB for its approval before implementation.
- You are required to submit a Progress Report every **6 month**.
- If PI is unable to complete your research within the validation period, he will be required an extension letter from the Central IRB one month before the expiry of the approval.

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المملكة العربية السعودية
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- Document Retention: all study documents should be kept by the Principal Investigator for a period of **5 years** from study completion.
- This letter gives you an ethical clearance to implement your study according to the approved documents and you still need to obtain administrative approval from the site/s where the study will be conducted.
- **At the end of the study**, please submit Final Report including the results or copy of the manuscript intended for publication to MOH data base: www.marifah.gov.sa

We thank you for submitting your study for review by the Central IRB-MoH and wish you all the best with this study.

If you have any further questions, feel free to contact me.

Sincerely Yours,

Dr. Hisham M. Aziz - M.D
Consultant

Central IRB-MOH Chairman-KSA
Phone: + 966 11 2125555 Ext. 4337
e-Mail: haziz@moh.gov.sa



e-mail: GDRS-IRB@moh.gov.sa

Appendix4:

Decisão final sobre o projecto "The attitude towards depression among primary health care physicians in Dammam and Alkhobar areas, eastern province, Saudi Arabia"

A Comissão de Ética da NMS[FCM-UNL (CEFCM) decidiu, por unanimidade, aprovar, do ponto de vista ético, o projecto de investigação intitulado "The attitude towards depression among primary health care physicians in Dammam and Alkhobar areas, eastern province, Saudi Arabia" (n.º13/2019/CEFCM), submetido pela Dra. Sarah Aldossary

Lisboa, 10 de Setembro de 2019

O Presidente da Comissão de Ética,



(Prof. Doutor Diogo Pais)

TO WHOM IT MAY CONCERN

The Ethics Research Committee NMS[FCM-UNL (CEFCM) has unanimously, approved the Project entitled " *The attitude towards depression among primary health care physicians in Dammam and Alkhobar areas, eastern province, Saudi Arabia*" (nr.13/2019/CEFCM), submitted by Sarah Aldossary, MD.

Lisbon, september 10th, 2019

The Chairman of the Ethics Research Committee,



(Diogo Pais, MD, PhD)