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Attitudes and practices of physiotherapists towards goal-setting for stroke rehabilitation: A wide online survey

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ABSTRACT

Goal-setting in stroke rehabilitation is poorly understood. This study examined attitudes, practices, and factors related to goal-setting in stroke rehabilitation among Portuguese physiotherapists. An online cross-sectional exploratory survey was conducted, collecting data on sociodemographic and service profiles, patient-centeredness, attitudes and practices of goal-setting, using the Patient-Practitioner Orientation Scale, and Attitudes toward Goal-Setting and Practices toward Goal-Setting Scales. Logistic regression identified factors associated with goal-setting. From 347 physiotherapists, mostly high scores were obtained for attitudes toward goal-setting. Heterogeneous practices were verified and 17 % reported no involvement in goal-setting. Working from the stroke survivor's home (OR10.218 [1.267–82.389], $p=0.029$) or from an inpatient rehabilitation unit (OR6.443 [1.918–21.636], $p=0.003$) were the strongest predictors of goal-setting, followed by positive attitudes toward goal-setting (OR1.111 [1.028–1.201], $p=0.008$). The identified organizational and professional characteristics should be considered to improve suboptimal goal-setting, namely by advocating the core contribution of goal-setting, disseminating best practices, and providing training.

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Introduction

Stroke is the third-leading cause of death and disability combined in the world,¹ and projections estimate 27 % more people living with stroke in the European Union in the next thirty years.² Portugal has a stroke prevalence of 423.9/100,000 annually.³ Stroke rehabilitation must acknowledge patient-centered care, including understanding the stroke survivors' beliefs, the alliance through the stroke survivor-practitioner relationship, the involvement of family members, communication, and shared power in decision-making regarding goals and plans.^{4–7} A goal-driven rehabilitation plan requires the implementation of a systematic goal-setting process, including a coordinated contribution from healthcare professionals.^{8–10} Siegert and Levack (2015) defined goal-setting as “*establishing or negotiating rehabilitation goals between the health care professional and the patient*”, which is acknowledged as a complex process with the potential to improve patient outcomes and autonomy.¹¹ “Goal-

setting” differs from “outcome-measurement” because the former refers to the process of setting, planning and monitoring the achievement of goals, while the latter refers to how the outcome related to that goal is assessed.^{12,13}

Goal-setting is recommended in stroke rehabilitation and is a core skill for rehabilitation professionals, including physiotherapists.^{14,15} When some form of shared goal-setting occurs between healthcare professionals, people, and caregivers, it appears to improve individuals satisfaction engagement in rehabilitation, goal-related behavior, and self-efficacy skills, which contributes to increased autonomy and independence.^{11,16–20} Structured goal-setting includes client-centered goal negotiation, measurability, action and coping plans, appraisal and feedback, and family involvement.^{5,11,12,21} Several methods for establishing and monitoring goals have been the subject of research in recent decades,^{11,17,22,23} and tools such as the Goal Attainment Scale (GAS) and the Canadian Occupational Performance Measure (COPM) are acknowledged in the literature for guiding and monitoring goal-setting in stroke rehabilitation.^{24,25} However, characteristics of tools, target users, and identified needs hinder the universality of a method across populations.^{11,13} In recent years,

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other more sophisticated and complex frameworks and tools have been developed to optimize and study goal-setting, such as the G-AP framework, the Patient-Specific Goal-setting, or the C-COGS.^{26–28} Nonetheless, structured goal-setting in rehabilitation is poorly implemented and needs to be contextualized.^{22,29–32} Current practices of goal-setting in rehabilitation usually left out components such as formulation of coping plan and follow-up⁵. A recent study found that clinicians were unable to demonstrate an understanding of the importance of comprehensive action planning and review processes beyond initial goal setting, suggesting that this is an area that merits deeper understanding in order to design appropriate optimization.³²

Research covering goal-setting in stroke physiotherapy is scarce. Surveys in the UK and Australia found that 91 % of community-based stroke services set goals with all or most stroke survivors, 17 % of healthcare professionals working in stroke rehabilitation did not use a method to guide goal-setting,²⁷ 30 % of healthcare professionals did not involve people in goal discussion,³³ and the review of progress and goal renegotiation was limited.³⁴ Nonetheless, available studies usually group heterogeneous professional classes and patient health conditions, potentially overlooking particularities. Patient self-efficacy, experiences, and social factors influence goal-setting,^{35,36} but little is known about how the characteristics of healthcare professionals influence its implementation.

According to the Theory of Planned Behavior, attitudes toward the behavior, subjective norms, and perceived behavioral control may determine behavioral intentions.³⁷ A recent scoping review identified healthcare professionals' beliefs and lack of knowledge and awareness of scientific evidence related to the goal-setting process as potential barriers to patient-centered goal-setting³¹. However, attitudes toward goal-setting in stroke rehabilitation are poorly understood specifically among physiotherapists. A study found moderate interest and relevance among physiotherapists in using the Patient-Specific Goal-setting instrument to guide rehabilitation goals for patients with heterogeneous health conditions.³⁸ However, the physiotherapist's perspectives on the usefulness of this tool concerning tailoring goals to the people's needs ranged from "useful" to "not useful at all".

Cultural differences in the dominant model of health care (biomedical vs. biopsychosocial) may influence the delivery of patient-centered interventions by the healthcare systems and, consequently, the interpretation and implementation of goal-setting.^{4,39,40} The usual referral to physiotherapy post-stroke in Portugal depends on clinical and sociodemographic characteristics and can be provided in different settings, with or without referral from another health professional.^{41,42} Pereira et al. (2020) investigated perspectives of Portuguese stroke survivors, caregivers, and health care professionals (including physiotherapists) on the transition home and found divergences in the interpretation of priorities and goals, suggesting further research on this topic. Recently, the Attitudes toward Goal-Setting (A-GS) and Practices of Goal-Setting (P-GS) scales were developed in European Portuguese to collect data on goal-setting by physiotherapists in stroke rehabilitation.⁴³

Once goal-setting in rehabilitation is recognized as a multifaceted process that is a cornerstone of best practices in stroke rehabilitation, it is crucial to examine contemporary attitudes and clinical practices in different settings to identify areas for improvement based on contextual data. To our knowledge, goal-setting in stroke physiotherapy is unexplored in Portugal. Understanding physiotherapists' beliefs and practices concerning goal-setting can provide insights to inform recommendations for its optimization. This study aimed to explore attitudes and practices toward goal-setting in stroke rehabilitation among Portuguese physiotherapists. Additionally, sociodemographic and professional characteristics were analyzed as factors for goal-setting implementation.

Materials and methods

Study design

This is a cross-sectional exploratory study. A national online survey among physiotherapists was conducted in Portugal between March and April 2022 over a four-week period. This study was approved by the ethics committee of the Health School of the Polytechnic Institute of Setubal (80/AFP/2021). Informed consent to participate was requested from study's participants. Informed consent was obtained before participants began completing the questionnaires.

Subjects

In 2018, approximately 11,000 physiotherapists were estimated to be working in Portugal, of which 17.5 % (approximately 1,925) in neurological rehabilitation, including stroke.⁴⁴ The paucity of data precluded the formulation of a comprehensive overview of the number of physiotherapists working in stroke rehabilitation. Assuming a population of 1,925 physiotherapists working in neurological rehabilitation, a 5 % margin of error and a 95 % confidence interval, we estimated a sample size of 321 responses (estimation calculated using <http://www.raosoft.com/samplesize.html>). We included physiotherapists (1) residing in Portugal; (2) treating at least one stroke survivor per month in any setting, phase, or condition; (3) agreeing to participate in the study and providing their informed consent. All physiotherapists without active practice in stroke rehabilitation were excluded." All physiotherapists without active practice in stroke rehabilitation were excluded.

All contacts were made through public emails or snowballing. Invitations to participate were disseminated through the Portuguese Association of Physiotherapists and groups of physiotherapists on social networks. Public and private hospitals, inpatient rehabilitation units, and coordinators of physiotherapy postgraduate and graduate courses were contacted to share the study with their contacts (e.g. clinical supervisors, certified physiotherapists).

Instruments

Supported by the Knowledge, Attitudes, and Practice Survey (KAP) method,⁴⁵ the survey comprised six dimensions: (i) *sociodemographic characterization*; (ii) *service profile*; (iii) *patient-centeredness orientation*; (iv) *attitudes toward goal-setting*; (v) *practices of goal-setting*; and (vi) *barriers and facilitators towards goal-setting*. Examining barriers and facilitators (dimension vi) was beyond the scope of analysis for this paper. **Table 1** shows the structure of the questionnaire.

Data on (iii) *Patient-centeredness* was collected through the European Portuguese version of the Patient-Practitioner Orientation Scale (PPOS),⁴⁶ which is an 18-item scale scored on a 6-point Likert scale (1-strongly disagree to 6-strongly agree) that assesses the role orientations of patients and health professionals toward patient-centeredness practices.⁴⁷ This scale comprises two subscales: sharing and caring. Total and subscale scores are calculated by dividing the sum of all items by the number of items. The total score can be classified as high (score ≥ 5.00 , suggesting a patient-centered orientation), medium ($4.57 < \text{score} < 5.00$) or low (score ≤ 4.57 , suggesting a professional orientation).⁴⁷ The European Portuguese version of the PPOS presented acceptable psychometric properties.⁴⁶

Attitudes toward Goal-setting Scale (A-GS) was used to assess physiotherapists attitudes regarding the role of goal-setting in stroke rehabilitation and the involvement of stroke survivors and family/caregivers in goal-setting.⁴³ The scale is composed of 9 items with a 2-factor structure: A-GS Role, related to the purpose of goal-setting (5 items); and A-GS Participation, related to who is involved in the

Table 1

Structure of the survey questionnaire for analysis.

Dimension	Item description
Sociodemographic characteristics (i) (7 items)	Age, gender, region, highest academic degree, postgraduate training on stroke rehabilitation, postgraduate training on goal-setting, experience with stroke rehabilitation
Service Profile (ii) (6 items)	Sector of work, clinical setting, exclusiveness of neurologic rehabilitation practice, stroke survivors' characteristics, number of stroke survivors seen per week, type of disciplinary teamwork
Patient-centeredness (iii) (18 items)	Patient-Practitioner Orientation Scale (PPOS)
Attitudes toward goal-setting (iv) (9 items)	Attitude toward Goal-Setting Scale (A-GS)
Practices of goal-setting (v) (22 items)	
a. Goal-setting implementation	1 closed-ended item about the occurrence of goal-setting in the respondent's workplace.
b. Who participate in goal-setting	1 closed-ended item on the involvement of the physiotherapist in goal-setting; 1 checkbox item regarding who participates in the process.
c. Goal-setting process	1 closed-ended item about the timing of goal-setting; 1 checkbox item on instruments used for goal-setting (including an open-ended option for participants type any other tool); 1 Likert-type item (from 1-never to 6-always) on the frequency of using the International Classification of Functioning, Disability and Health (ICF) to guide the goal-setting.
d. Goal assessment and monitoring	1 closed-ended item on the frequency of goal-setting review; 1 Likert-type items (from 1-never to 6-always) on the frequency of reducing the level of difficulty of a goal when no progress is seen; 1 Likert-type items (from 1-never to 6-always) on the frequency of disengaging the level of difficulty of a goal when no progress is seen.
e. Practices of goal-setting scale	Practices of Goal-Setting Scale (P-GS)

process (4 items). Items are rated using a 6-point Likert scale (1-strongly disagree to 6-strongly agree). The total score ranges from 9 to 54, in which higher scores suggest a perspective closer to recommendations.^{7,48–50} The scale has shown adequate psychometric properties, including good internal consistency ($\alpha=0.802$; $MIIC=0.314$), content and structural validity.

The Practices towards Goal-setting Scale (P-GS) was embedded to assess physiotherapists' practices regarding procedures, documentation and monitoring in the scope of goal-setting in stroke rehabilitation.⁴³ The P-GS is composed of 13 items with a 2-factor model: P-GS Procedures, related to the implementation of required steps for structured goal-setting (9 items); and P-GS Documentation, related to the frequency of the goal-setting recording and sharing (4 items). Items are rated using a 6-point Likert scale (1-never to 6-always). The total score ranges from 13 to 78, with the highest scores representing a practice aligned with recommendations.^{23,48,49,51} The scale as shown adequate psychometric characteristics in terms of reliability ($\alpha=0.869$; $MIIC=0.359$), content and structural validity.

Details on the step-by-step development and validation process for the A-GS and P-GS scales can be found elsewhere.⁴³

Procedures

Participants were informed to consider goal-setting as "establishing or negotiating rehabilitation goals between the health care professional and the patient, whether the informal caregiver is involved".⁴⁸ Participants were not provided with detailed background information on goal-setting best practices to mitigate social bias. Only participants who reported actively formulating rehabilitation goals in sections a) and b) of the "Practices of Goal Setting" dimension proceeded to the remaining sections. The questionnaire was distributed via SurveyMonkey®.

Data analysis

Data were downloaded from SurveyMonkey® at the end of the period of data collection and analyzed in SPSS (Version 28.0.1.1, IBM Corp., Armonk, NY). Incomplete questionnaires were excluded for analysis. Imputation data methods were not applied due to the low rate of missing data (<0.01 %, 217/24217).⁵² For analyses considering scale scores, an omitted response led to the exclusion of that participant. "Dont Answer/Dont know" were considered missing values for this purpose.

Variables were described using descriptive statistics. Univariable and multivariable logistic regression were used to identify factors

associated with goal implementation. The dependent variable derived from two questions located in the *Practices of goal-setting (v)* dimension: "Are rehabilitation goals usually formulated for stroke patients?"; and "Are you directly involved in goal-setting with stroke patients?". These questions ensured that physiotherapists performed the first step of goal-setting.⁴⁹ Participants who answered "yes" to both questions were classified as "goal-setters"; the remaining participants were classified as "non-goal-setters". Independent variables included sociodemographic and professional characteristics, the PPOS scores, and the A-GS score (see supplementary material 2). PPOS scores were included due to the theoretical connection between a patient-centered approach and a goal-oriented practice.^{5,53} The odds ratio (OR) and their corresponding 95 % confidence intervals (95 %CI) were individually estimated through bivariable logistic regression for each covariable. In the absence of recognized factors known to influence goal-setting practices, no adjustments have been made at this time. Finally, an initial multivariable model included all covariates with $p<0.25$ from the bivariable analysis to analyze their simultaneous effect on the dependent variable and find the most relevant ones.⁵⁴ This model was optimized by an automatic stepwise regression procedure using the backward conditional selection method to select statistically significant variables ($p<0.05$ for entry and $p>0.10$ for removal). Multicollinearity in the multivariable model was assessed using a variance inflation factor (VIF). If $VIF\geq 5$, the variables were removed and the analysis repeated, including the previous variables present in the latest model, until no multicollinearity was detected.⁵⁵ The ORs and 95 %CI were used as measures of association. The quality of the final model was assessed by its adequacy, using the Hosmer-Lemeshow goodness-of-fit test, with values of $p>0.05$ indicating that the model is calibrated, and by its predictive capacity, assessed by the area under the curve (AUC) of the receiver operating characteristic (ROC), with values above 0.7 considered fair.^{55,56}

An item in the *Practices of Goal-Setting (v)* allowed respondents to type in any tools used for goal-setting. The frequency of reported tools was counted.

Results

Completion ratio

A total of 493 physiotherapists returned the survey. Of these, 350 completed the questionnaire, resulting in a completion rate of 70.9 % (Fig. 1). Three hundred and forty-seven participants were eligible for analysis. The average time for completion was 16 min.

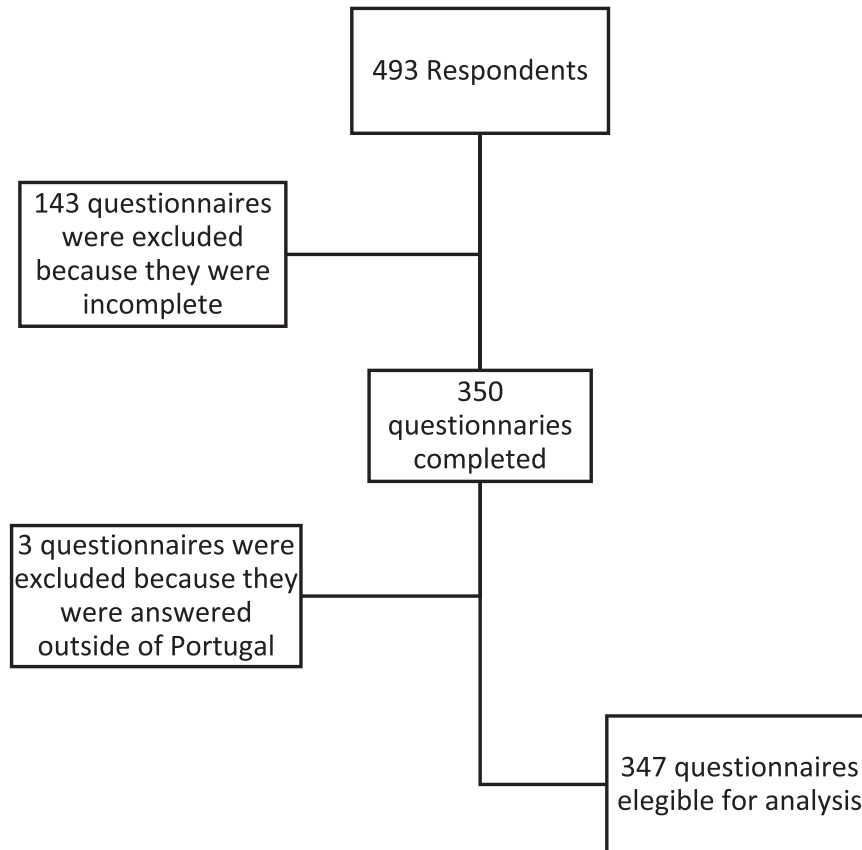


Fig. 1. Flowchart of responses selection for analysis.

Sociodemographic characterization and service profile

Approximately 80 % of respondents were aged below 40, most being female. The experience level with stroke rehabilitation was equitably distributed, and about 8 % worked exclusively in neurologic rehabilitation. More than half did not have postgraduate training in stroke rehabilitation or goal-setting, and more than two-thirds intervened with chronic stroke survivors. Table 2 summarizes the sample characteristics.

Patient-centeredness

PPOS total score and Sharing and Caring subscales obtained average scores of 4.49 ± 0.52 , 4.13 ± 0.75 , and 4.84 ± 0.50 , respectively. Sixty-nine (20.5 %) respondents were classified as having high patient-centered orientation and 195 (57.9 %) as having a low patient-centered orientation (Fig. 2).

Attitudes toward goal-setting in stroke rehabilitation

The average score for the A-GS Total was 48.90 ± 4.24 , ranging from 24.00 to 54.00. A-GS subscales had average scores of 26.71 ± 2.59 for A-GS Role, and of 20.84 ± 2.64 for A-GS Participation. This suggests positive attitudes concerning the contribution of goal-setting for the rehabilitation process (A-GS Role) and embracing stroke survivors with different conditions and caregivers/family in goal-setting (A-GS Participation) (Fig. 3(a)).

All items obtained individual average scores above 5, except for involving stroke survivors with cognitive problems in goal-setting, where more than half did not consider it very or totally relevant (4.46 ± 1.23) (Fig. 4). Details in supplementary material 1.

Practices of goal-setting in stroke rehabilitation

Goal-setting implementation

Out of 347 answers, 45 (13.0 %) physiotherapists reported that goal-setting with stroke survivors did not occur in their service.

Who participates in goal-setting

Fourteen (4.0 %) physiotherapists stated they were not actively involved in the goal-setting process. This means that a total of 59 (17.0 %) physiotherapists were classified as non-goal-setters. On the other hand, of the 288 (83.0 %) goal-setters, 157 reported routinely setting goals with all stroke survivors, and another 131 set goals but not with all. About 90 % ($n=264$) of goal-setters referred to actively involve stroke survivors in the goal-setting process somehow. Table 3 shows that physiotherapists reported multiple forms for establishing goals in stroke rehabilitation regarding who participates in the process.

Goal-setting process

The first week after contacting stroke survivors was the prevailing moment to carry out goal-setting (37.5 %). Regarding the use of instruments, more than half of all respondents (51.6 %) stated that they do not use a specific instrument to guide goal-setting, but goals are registered. Almost 50 % of physiotherapists stated the International Classification for Functioning (ICF) was never or rarely used as a guide for goal-setting (see supplementary material 1). About 4 % mentioned using the Goal Attainment Scale, or Canadian Occupational Performance Measure. Other reported goal-setting tools are listed in Table 4.

Table 2
Sociodemographic characterization and Service Profile (n=347).

Sociodemographic Characterization	n (%)
Age	
20 – 29	135 (38.9%)
30 – 39	150 (43.2%)
40 – 49	39 (11.2%)
+ 50	23 (6.7%)
Gender	
Male	53 (15.3%)
Female	292 (84.1%)
Other	2 (0.6%)
Region (n=346)	
Alentejo	21 (6.1%)
Algarve	13 (3.7%)
Lisbon Metropolitan Area	81 (23.3%)
Centre	125 (36%)
North	88 (25.4%)
Autonomous Region of Azores	9 (2.6%)
Autonomous Region of Madeira	9 (2.6%)
Academic Degree	
Bachelor or Diploma	286 (82.4%)
Master	59 (17.0%)
PhD	2 (0.6%)
Postgraduate training on stroke rehabilitation (n=345)	
Yes	93 (26.8%)
No	252 (72.6%)
Postgraduate training on goal-setting (n=344)	
Yes	126 (36.3%)
No	218 (62.8%)
Years of experience with stroke survivors	
<3	74 (21.3%)
3-5	67 (19.3%)
6-10	89 (25.6%)
11-15	70 (20.2%)
+16	47 (13.6%)
Service Profile	
Work Sector(s) (n=344)	
Public	63 (18.2%)
Private	164 (47.3%)
Social	24 (6.9%)
Public or Social and Private	93 (26.8%)
Physiotherapists main workplace with stroke survivors	
Stroke survivor's own home	43 (12.4%)
Nursing Home	31 (8.9%)
Inpatient Rehabilitation Unit	83 (23.9%)
Hospital	71 (20.5%)
Clinic	86 (24.8%)
Private Cabinet	21 (6.1%)
Health Centre	11 (3.2%)
Other	1 (0.6%)
Exclusive practice in neurological rehabilitation	
Yes	28 (8.1%)
No	319 (91.9%)
Stroke survivors seen per month (n=336)	
1-5	222 (64.0%)
6-10	78 (22.5%)
+11	36 (10.4%)
Age range of stroke survivors seen (n=346)	
<18 y	3 (0.9%)
≥18 - 65 y	116 (33.4%)
+ 65 y	289 (83.3%)
Stroke phase of people seen (n=346)	
Acute Care (till hospital discharge)	65 (18.7%)
Subacute care (<6 mo)	197 (56.9%)
Chronic (>6 mo)	241 (69.5%)
Type of disciplinary teamwork (n=344)	
Interdisciplinary	146 (42.1%)
Multidisciplinary	132 (38.0%)
Without a team	66 (19.0%)

Goal-setting assessment and monitoring

About half (47.0%) stated that reviewing goals is not done systematically. Suggesting reducing the difficulty or disengage from a goal when no progress is verified obtained average scores of 4.27 ± 1.19 and 2.92 ± 1.21 , respectively (see supplementary material 1).

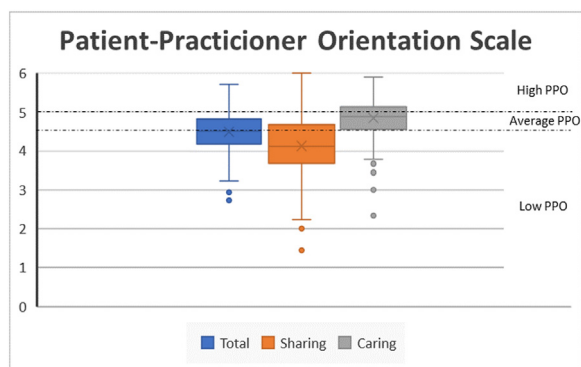


Fig. 2. Patient-Practitioner Orientation Scale scores distribution by boxplots.

Practices of goal-setting scale (P-GS)

An average of 59.6 ± 10.32 ($n=270$) was obtained for the total score of P-GS, ranging from 27.00 to 78.00. P-GS subscales had average scores of 41.21 ± 7.52 for P-GS Process, suggesting fair implementation of practices regarding the elements related to generating the goals; and 18.23 ± 4.70 for P-GS Documentation, indicating fair execution of evaluation and recording the goal-setting processes with appropriate instruments (Fig. 3(b)).

Establishing attainable goals was the practice most reported, with 83.3% of goal-setters reporting to perform it “always” or “almost always”. However, using outcome-measures to monitor progress regarding goals was the practice less reported, with 24.7% of the physiotherapists mentioning “never” or “rarely” (Fig. 5). Details in supplementary material 1.

Factors associated with goal-setting implementation

Factors with significance levels below 0.25 in the bivariable logistic regression analysis (see Supplementary Material 2) were included for multivariable analysis. In the final model (Table 5), providing physiotherapy at the stroke survivor's home or in an inpatient rehabilitation unit, having postgraduate training in stroke rehabilitation, and having a favorable attitude toward goal-setting were more likely to be goal-setters.

This model demonstrated adequate calibration (Hosmer-Lemeshow $p=0.48$) and fair discrimination (AUC of 0.78) (see supplementary material 3 for subgroup descriptive analyses of goal-setter/non-goal-setter classification).

Discussion

This study aimed to explore attitudes and practices toward goal-setting in stroke rehabilitation among Portuguese physiotherapists. In addition, factors associated with goal-setting implementation were investigated. Most respondents had a positive view of goal-setting and reported setting goals with stroke survivors. However, around 17% of the physiotherapists were classified as non-goal-setters and heterogeneous practices were found among goal-setters. Workplace, postgraduate training in stroke rehabilitation, and positive attitudes toward goal-setting were associated with goal-setting implementation.

Patient-centeredness orientation and attitudes toward goal-setting

Patient-centered practice requires that patients be involved in clinical decision-making, including goal-setting.⁵ However, literature on the attitudes of physiotherapists towards patient-centeredness and goal-setting in stroke rehabilitation is limited.^{9,38} In this study,

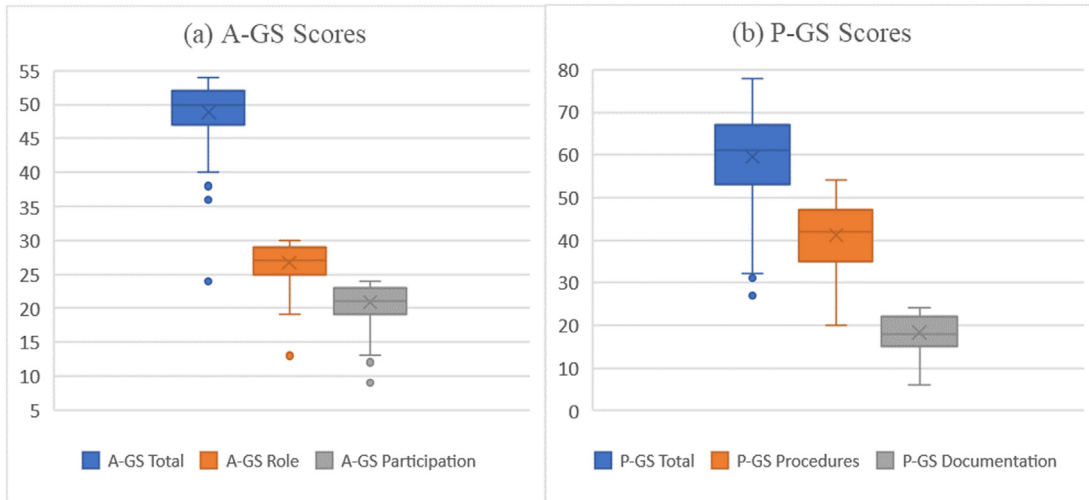


Fig. 3. Box plots of scores distribution of the (a) Attitudes toward Goal-Setting scale (A-GS) and (b) Practices of Goal-Setting (P-GS) regarding stroke rehabilitation.

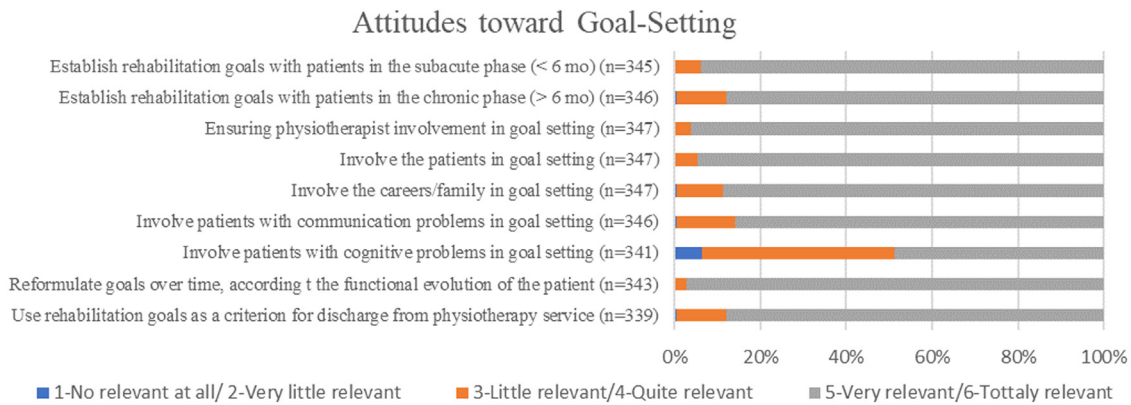


Fig. 4. Distribution of responses in items relating to attitudes toward goal-setting in stroke rehabilitation.

Table 3
Stroke survivors and caregivers' involvement in goal-setting.

	Goal-setting with stroke survivors			Goal-setting with stroke survivors and informal caregivers			Goal-setting exclusively by the physiotherapist		
	n	%GS ^{a)}	%T ^{b)}	n	%GS ^{a)}	%T ^{b)}	n	%GS ^{a)}	%T ^{b)}
Only with the physiotherapist	72	25.0 %	20.7 %	103	35.8 %	29.7 %	17	5.9 %	4.9 %
With a team of healthcare professionals	56	19.4 %	16.1 %	113	39.2 %	32.6 %			
With a member of a team of healthcare professionals	4	1.4 %	1.2 %	4	1.4 %	1.2 %			
Total	113	39.2 %	32.6 %	191	66.3 %	55.0 %	17	5.9 %	4.9 %

Note: ^{a)} %GS - related to the number of Goal-Setters (n=288); ^{b)} %T - related to the overall number of respondents to the survey (Goals Setters and Non-Goal Setters) (n=347)

Table 4
Reported tools used by physiotherapists for goal-setting with stroke survivors.

Name of the tool	No. of physiotherapists who report
Berg Balance scale	4
Functional Independence Measure	3
Barthel Index	2
Trunk Impairment Scale	
International Classification of Functioning, Disability and Health	
10-min walk Test	1
Six-minute walk test	
Stroke Rehabilitation Assessment of Movement	
Functional Ambulatory Category	
Postural Assessment Scale for Stroke Patients	
Tinetti scale	
Rating of Perceived Exertion	

about 58 % of physiotherapists presented a low patient-centered orientation, which may relate to a culturally paternalistic view of healthcare provision.⁵⁷ However, this trend of low patient-centeredness among physiotherapists is consistent with literature that includes health students and professionals from a variety of disciplines and countries.^{58,59} These results contribute to highlight the need to invest in developing strategies and raising awareness to change attitudes from professional-controlled to more patient-driven goal-setting.⁶⁰ Nevertheless, physiotherapists acknowledged the importance of goal-setting in stroke rehabilitation by generally scoring high on the A-GS, which is consistent with findings from a Dutch study that also included physiotherapists.⁶¹ This suggests that physiotherapists recognize the significance of goal-setting in stroke rehabilitation, although primarily for professional objectives.^{40,53} Setting goals with stroke survivors with cognitive problems was not very/ completely relevant for a sizable proportion of respondents in our

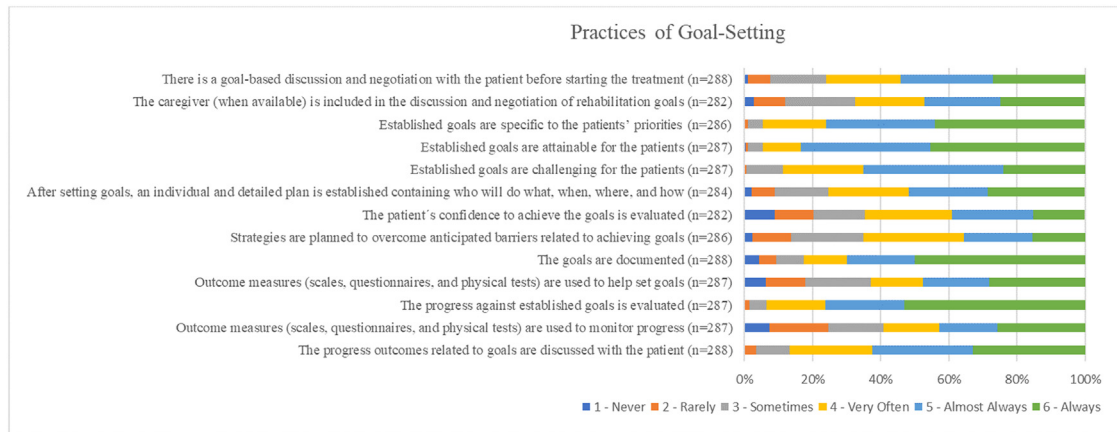


Fig. 5. Distribution of responses in items relating to practices of goal-setting in stroke rehabilitation (n=288).

Table 5
Final multivariable model with covariables logistic regression analysis for self-reported Goal-setters (n=322).

	OR CI95 %	p
Main Workplace (Reference class: Hospital)		
Stroke survivor's own Home	10.218 [1.267 – 82.389]	0.029*
Nursing Home	4.390 [0.903 – 21.354]	0.067*
Inpatient Rehabilitation Unit	6.443 [1.918 – 21.636]	0.003*
Clinic	0.561 [0.254 – 1.239]	0.153
Private Cabinet	0.949 [0.231 – 3.907]	0.924
Health Center	1.038 [0.190 – 5.668]	0.966
Postgraduate training in stroke rehabilitation (Reference class: No)		
Yes	2.163 [0.948 – 4.935]	0.067*
A-GS	1.111 [1.028 – 1.201]	0.008*

*p<0.100. Note: A-GS - Attitude Towards Goal-setting Scale. OR – Odd Ratio. CI – Confidence Interval. Method used included backward conditional selection method (p<0.05 for entry and p>0.10 for removal). However, in the analysis for multicollinearity, Region was excluded due to VIF≥5, indicating multicollinearity, and a backward stepwise regression was repeated including all variables remaining in that model. This table is the result of this second round for the final model.

study, although strategies are recommended in the literature for enabling their inclusion.⁵⁰ The results of our study support that goal-setting for individuals with cognitive or communication deficits should be investigated individually.²⁷

Practices of goal-setting

Around 80 % of the respondents reported working with a health-care team. The integration of care providers (e.g., physicians, physiotherapists, occupational therapists, nurses) and close coordination of their activities across levels of care and multiple sites for stroke rehabilitation is recognized in the literature, including in specialized fields, such as the geriatric care team.^{10,62,63} A recent study showed that nurses working in rehabilitation collaborate predominantly with physiotherapists, which makes understanding attitudes and practices toward goal-setting in particular disciplines important to provide insights to improve coordination of multidisciplinary work adapted to each reality.⁶⁴ In this study, although most physiotherapists reported having an active role in goal-setting with stroke survivors, 17 % did not. This can provide a barrier to multidisciplinary collaboration. Scobbie et al.²⁷ found that only 1 % of services in the UK delivering community-based stroke rehabilitation did not routinely set goals with stroke survivors. However, the collaborative formulation,

communication, and adjustment of rehabilitation goals between healthcare professionals and stroke survivors and caregivers (whether in multidisciplinary or interdisciplinary teams) is poorly explored, and studies have suggested that improving the coordination of goal-setting practices is a priority for future research.^{65–67}

Specifics of the health care organization regarding the autonomy of the physiotherapist or the awareness of physiotherapists concerning structured goal-setting components may outline differences.^{41,68} Nevertheless, physiotherapists non-involvement in goal-setting with stroke survivor's rehabilitation warrants further investigation as it is critical for physiotherapy best practice.⁶⁹ In our study, 55 % of all physiotherapists stated actively involving both stroke survivors and caregivers/family in goal-setting, while 33 % reported involving only stroke survivors. The literature suggests that patients and their caregivers may report concordant and discordant goals and reveal variability in the level of involvement of care partners in goal setting.⁷⁰ Nevertheless, the inclusion of caregivers/family in goal-setting aligns with person and family-centered care approaches and can contribute to better care plans.^{30,70} A study among services of stroke rehabilitation in the UK reported 89 % and 54 % of high priority for involving stroke survivors and caregivers, respectively.²⁷ Although the involvement of caregivers/families in goal-setting is recommended,^{14,49} the literature also acknowledges their infrequent inclusion in the process, and strategies to optimize their participation are underdeveloped.^{30,71} In fact, in our study, despite physiotherapists' positive attitudes towards goal-setting, the practices expressed were not necessarily aligned with international recommendations for client-centered goal-setting.^{5,11,12,21}

Monitoring progress on rehabilitation goals is a cornerstone in goal-setting best practices, with tools such as the GAS or COPM being recommended.^{28,49} Although 75 % of physiotherapists reported reassessing progress on goals from "sometimes" to "always", this practice appears to rely on outcome-measuring tools rather than formal goal-setting tools, as 4.1 % reported using the GAS or COPM for goal-setting, with no mention of other tools specifically dedicated to goal-setting beyond outcome-measuring. Siegert and Levack et al.⁴⁸ addressed the misunderstanding between tools that support goal-setting and those that measure outcomes. In the UK, Scobbie et al.²⁷ found that about half of healthcare professionals working in stroke rehabilitation used GAS, COPM or other formal methods for monitoring goals. The lack of use of a tool to guide goal-setting by most physiotherapists in our study deviates from existing recommendations¹³ and raises concerns about physiotherapists' awareness of the components of structured goal-setting. This may be related to the lack of inclusion of goal-setting in graduate courses or continuing education.

The scores obtained in the P-GS suggest a fair implementation of structured goal-setting in stroke rehabilitation, when practiced. Routinely setting achievable and specific goals aligns with Scobbie et al. results,²⁷ although it is noteworthy that interpretation may differ between professionals, stroke survivors, and caregivers/families.^{72,73} About 40 % physiotherapists found it hard to give up a goal, even when no progress is observed, which aligns with the study of Scobbie et al.,²⁷ which found 38 % of stroke rehabilitation services do not disengage/downgrade from goals when no progress occurs. This reluctance may be related to promoting a sense of hope, which is a strategy in the early stages of stroke.⁷⁴ However, goal disengagement in the absence of progress should be addressed in terms of goal-setting,²³ as it can lead to unrealistic expectations and a mismatch of goals between stroke survivors and physiotherapists over time, promoting dependency and perpetuation of treatments, adrift, without need or adequate goals to be achieved.⁷⁵ This may lead to difficulties in redefining stroke survivors' life goals during the transition from subacute to chronic stages, delaying stroke survivor's readjustment and reintegration into their lives.^{14,73} To avoid this, inclusion of self-management approaches in rehabilitation is recommended, which implies communication skills and time-dependent changes, requiring stroke survivors to become increasingly aware of their condition and realistic goals.^{76,77}

Factors for goal-setting implementation

Research on factors influencing goal setting in rehabilitation has typically used qualitative approaches based on the perspectives of patients, carers and health professionals⁷¹. To our knowledge, this is the first study to statistically associate characteristics of physiotherapists with goal-setting practice. Working from the patients home and from inpatient units seems to be more conducive to goal-setting, but the wide 95 %CIs obtained may indicate imprecision of the results. Working from the patient's home may grant autonomy for physiotherapists to be involved in the goal-setting process, and evidence demonstrates the benefits of early discharge from inpatient services and providing community stroke rehabilitation, which promotes the representativeness and meaningfulness of goals related to real-life purposes.^{78,79} Working on inpatient rehabilitation units also facilitated goal-setting, which may be required by institutional protocols.⁸⁰ The positive association between physiotherapists' postgraduate training in stroke rehabilitation and goal-setting practice highlights the relevance of providing and optimizing lifelong learning and encourages specialization.^{28,81} Conversely, attitudes toward goal-setting have more accurate 95 %CIs, but a marginal role associated to goal-setting.

Previous research suggests that experienced key-workers may facilitate goal negotiation;⁷¹ however, in our study, the physiotherapists' age or experience did not affect goal-setting. Furthermore, the absence of stroke stage in the final multivariable model suggests that non-goal-setting may occur at any phase of stroke rehabilitation. Although stroke survivor's readiness for goal-setting may be hindered in the acute stages of stroke,^{8,82} the literature also supports the lack of stroke survivor involvement in goal-setting in later stages.⁸³

Limitations

This study collected self-reported data, which may concern social desirability and recall bias. Additionally, several institutions were unresponsive or slow to respond due to organizational rules, which limited contacting these physiotherapists. The non-probabilistic sampling method may have limited the external validity regarding the geographical distribution of participants. However, age, gender, and qualifications within our sample had similar distribution patterns to the general Portuguese physiotherapist population.⁸⁴ Other

characteristics could not be compared because the results were presented in a way that prevented this and there was insufficient data. Nevertheless, the 71 % response rate achieved is in line with recommended levels for health science surveys⁸⁵. In addition, the sample size obtained is satisfactory compared to similar international studies with a larger population of physiotherapists and is larger than the estimated required sample size, allowing a margin of error of less than 5 % for 95 % confidence intervals of general proportions. It should also be noted that this study included only one professional category.^{27,33}

Conclusion

This is the first study using validated scales to explore attitudes and practices related to goal-setting in stroke rehabilitation with Portuguese physiotherapists. In addition, we believe it is the first study to examine factors in self-reported goal-setting using correlational statistics.

Our data suggest that most Portuguese physiotherapists implement goal-setting, but distinctly. Despite general optimistic attitudes toward goal-setting, some physiotherapists do not routinely involve stroke survivors or caregivers in the process, nor do they apply all steps for desirable goal-setting. Sociodemographic and professional characteristics may play a role in goal-setting implementation.

Practice implications

Implications for practice include raising awareness of formulating and monitoring goals when planning physiotherapy interventions in a structured form, ensuring that both professionals and patients have clear and achievable objectives to work towards; standardizing graduate teaching methods, aiming to provide a similar background in goal-setting for all healthcare professionals; and contemplating goal-setting along with self-management interventions, targeting stroke survivors and caregivers to routinely involve them in this process and empower them to increase their self-efficacy. At the organizational level, recommendations include providing continuous/in-service training about structured goal-setting for specific populations and highlighting the importance of including structured goal-setting as a core element of stroke rehabilitation to healthcare managers, such as implementing protocols and expectations for this practice.

Future research should deepen the awareness of physiotherapists about the structured goal-setting process, determine the optimal goal-setting tool for stroke rehabilitation, determine the needs of each clinical context, and improve strategies for discussing rehabilitation goals and plans involving stroke survivors and caregivers, such as replicating internationally tested approaches. In addition, this study provides factual data that can be used to inform future research using a co-designed approach to develop strategies to foster collaboration between stroke survivors, caregivers, and various professionals from the healthcare team, aiming for more feasible and effective implementation strategies.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

André Vieira: Writing – review & editing, Writing – original draft, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Carla Mendes Pereira:** Writing – review & editing, Validation, Supervision, Methodology, Conceptualization.

Pedro Aguiar: Validation, Formal analysis. **Ana Rita Goes:** Writing – review & editing, Validation, Methodology, Conceptualization.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.gerinurse.2025.103390.

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