

Barriers to nurses performing physical assessments in rehabilitation care units: An observational study

Lorena Da Veiga Gonçalves^{1,2}  | Maria Latanioti³ | Sabah Latif⁴ | Henk Verloo^{5,6} | Filipa Pereira⁵

¹School of Health Sciences of the Canton of Vaud, University of Applied Sciences and Arts Western Switzerland, Lausanne, Switzerland

²Institute of Higher Education and Research in Healthcare, Lausanne University Hospital and University of Lausanne, Lausanne, Switzerland

³Center for Psychiatry and Psychotherapy in Flon, Lausanne, Switzerland

⁴Medical and Psychosocial Institutions Association, Renens, Switzerland

⁵School of Health Sciences, University of Applied Sciences and Arts Western Switzerland, Sion, Switzerland

⁶Department of Old Age Psychiatry, Lausanne University Hospital, Lausanne, Switzerland

Correspondence

Lorena Da Veiga Gonçalves, Haute Ecole de Santé Vaud (HESAV), University of Applied Sciences and Arts Western Switzerland (HES-SO), Avenue de Beaumont 21, 1011 Lausanne, Switzerland.

Email: lorena.daveigagoncalves@hesav.ch

Filipa Pereira, Haute école de santé Valais (HEdS Valais), University of Applied Sciences and Arts Western Switzerland (HES-SO), Ch. de l'Agasse 5, 1950 Sion, Switzerland.

Email: filipa.pereira@hevs.ch

Abstract

Aims: To describe the perceived barriers to nurses performing physical assessments of patients in rehabilitation wards. Secondly, to investigate how sociodemographic and professional characteristics influence the use and frequency of physical assessments by nurses and their perceptions of barriers to their practice.

Design: A multicentre, cross-sectional, observational study.

Methods: Data were collected from September to November 2020 among nurses working with inpatients in eight rehabilitation care institutions in French-speaking Switzerland. Instruments included the *Barriers to Nurses' use of Physical Assessment Scale*.

Results: Almost half of the 112 nurses who responded reported performing physical assessments regularly. The predominant perceived barriers to performing physical assessments were 'specialty area', 'lack of nursing role models' and 'lack of time and interruptions'. Greater clinical nursing experience in rehabilitation wards and more senior nurse specialist positions were associated with significantly lower use of physical assessment procedures by nurses.

Conclusion: The present study revealed heterogeneity in the use of physical assessment by nurses practicing in rehabilitation units and highlighted their perceived barriers to this.

Impact statement: Most nurses working in rehabilitation care units did not routinely perform physical assessments as part of their daily clinical practice. These results should raise stakeholders' awareness of this fact. Effective interventions to increase the use of physical assessments in nursing practice are to be recommended, including continuing education or hiring enough highly qualified nurses as role models in wards. This will promote quality of care and patient safety in rehabilitation care units.

Public and patient engagement and involvement: There was no patient or public involvement in the present study.

KEYWORDS

barriers, nurses, nursing physical assessment, physical examination, rehabilitation wards

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1 | INTRODUCTION

WHO reports that 2.4 billion people around the world are living with chronic health problems requiring rehabilitation care (WHO, 2021). Evolutions in global demographics and health, such as ageing populations, the high prevalence of multimorbidity, medical progress or increasing numbers living with the sequela of accidents or illness, including COVID-19, are all leading to a constant increase in the demand for rehabilitation care (Office fédéral de la santé publique [FOPH], n.d.; Garlepp, 2015; Prvu Bettger et al., 2020; WHO, 2021). Rehabilitation care aims to lessen patients' functional limitations and ease their reinsertion into professional and private life (Office fédéral de la statistique, 2019; WHO, 2021).

However, because the time before patients are transferred from acute care units to rehabilitation units is constantly shortening, they can arrive in a state of relatively unstable overall health (FOPH, n.d.; Garlepp, 2015). This contributes to multiplying the risks of health complications in these units (FOPH, n.d.; Garlepp, 2015). Nurses are in the front line and best position to evaluate patients early and detect any potential health complications (Massey et al., 2016; Schmid et al., 2007). Clinical evaluation is a practice at the very heart of nursing care, made up of anamnesis and a physical assessment of the patient (Doyon & Longpré, 2016; Sivapuram, 2020). A physical assessment allows nurses to collect objective health data straight from the patient using the techniques of inspection, palpation, percussion and auscultation (Secrest et al., 2005). When assessments are performed in a complete, standardized, structured and systematic fashion, they enable the early detection of many pathophysiological changes (Schmid et al., 2007; West, 2006).

However, several studies have observed that physical assessments are an underused skill in nurses' clinical practice (Birks et al., 2013; Cicolini et al., 2015; Shi et al., 2020). This will slow the detection of patients' clinical deteriorations and the implementation of the necessary interventions, which could lead to unintended consequences as grave as the patient's early death (Kohtz et al., 2017; Massey et al., 2016; Schmid et al., 2007). In other words, underuse of physical assessment by nurses raises the risks of avoidable events such as failure to rescue and endangers patient safety (Massey et al., 2016; Schmid et al., 2007).

In acute care contexts, research has identified several barriers to physical assessments by nurses, such as a lack of time, a lack of confidence or the type of nursing training undergone (Douglas et al., 2014; Osborne et al., 2015). Nevertheless, despite the increasing severity and complexity of patients' health statuses when they are admitted to rehabilitation units, to the best of our knowledge, no scientific studies to date have examined the barriers to physical assessments by nurses in this clinical setting. Thus, the present research set out to describe the barriers to those physical assessments as perceived by the nurses in rehabilitation units themselves.

2 | BACKGROUND

For physical assessments by nurses to contribute to patient safety and effective care, they must be performed comprehensively, systematically and competently (Fennessey & Wittmann-Price, 2011). The literature also recommends that a complete physical assessment by a nurse should take place within 4 h of a patient's admission, at regular intervals during the working day, and following any change in the patient's clinical state (Sivapuram, 2020). Furthermore, it is recommended that evaluations be structured using some type of reference framework (Sivapuram, 2020).

Nevertheless, several observational studies have noted that the practice of physical assessments by nurses in clinical settings lacked any uniformity or systematic application (Birks et al., 2013; Cicolini et al., 2015; Shi et al., 2020). The participants in these studies stated that they only regularly used between 7.5% and 66% of the physical assessment techniques that they had been taught at nursing school (Birks et al., 2013; Cicolini et al., 2015; Shi et al., 2020).

Several studies have identified numerous barriers to the use of physical assessment to help explain the heterogeneity in these nursing practices (Birks et al., 2013; Cicolini et al., 2015; Douglas et al., 2014; McElhinney, 2010; Osborne et al., 2015; Shi et al., 2020). Cicolini et al. (2015) identified that the type of nursing training undergone was a significant predictor of the use of physical assessment techniques. Nurses trained to bachelor's degree level used them more than nurses who had not undergone a university-level nursing education (Cicolini et al., 2015). Osborne et al. (2015) observed that nurses with more than 10 years of professional experience used fewer physical assessment techniques than less experienced nurses. McElhinney (2010) also underlined that a lack of confidence could be an obstacle to nurses practicing physical assessments. Dependence on others and on technologies were other barriers identified (Birks et al., 2013; Massey et al., 2016). Massey et al. (2016) noted that excessive dependence on technology, such as electronic blood pressure measurement devices, hindered nurses from recognizing clinical deterioration because they no longer performed holistic evaluations of their patients. Birks et al. (2013) observed that some nurses abstained from performing physical assessments because they knew that physicians would perform one subsequently anyway. A lack of time and frequent interruptions were also identified as barriers to nurses performing complete physical assessments (Douglas et al., 2014; Shi et al., 2020). Specialty areas of nurses and a lack of nursing role models in care units were also identified as potentially reducing the practice of performing physical assessments (Douglas et al., 2014; Osborne et al., 2015). Osborne et al. (2015) observed that mental health nurses used physical assessment techniques less than half as often as those in surgical units.

3 | THE STUDY

3.1 | Aims

The present study aimed to describe the perceived barriers to nurses performing physical assessments in rehabilitation wards and explore whether their sociodemographic and professional characteristics influenced those perceptions and the frequency of assessments in their practice.

3.2 | Design

This was a multicentre, cross-sectional, observational study based on questionnaires self-administered by nurses working in rehabilitation care units; it used the STrengthening the Reporting of Observational studies in Epidemiology (STROBE) checklist developed by von Elm et al. (2007).

3.3 | Sample/participants

The target population was composed of 245 eligible, registered nurses working in rehabilitation care units in the cantons of Vaud and Valais in French-speaking Switzerland. To create a cohort of respondents large enough for credible findings, we used a simple, nonprobabilistic, convenience sampling method. To the best of our knowledge, no similar studies have been conducted in this clinical context. Inclusion criteria included being a qualified nurse who could fluently read and write French. Exclusion criteria were being a student or temporary nurse or only having worked in a rehabilitation care unit for 3 months or less.

Contact with potential participating rehabilitation care units or institutions was made by email and telephone calls to their directors of nursing care, nurse managers, nurse clinicians or clinical nurse specialists. Meetings were then organized to present the study and respond to any questions. Potential participants were then identified and invited to take part in the study by those nurse clinicians, clinical nurse specialists or nurse managers.

3.4 | Ethical considerations

This study protocol was approved by a Swiss university hospital's Research Application Review Board (no. 2020-12). By returning the questionnaire to the investigator, respondents gave their tacit consent to participate in the study and agreed to the conditions of participation.

3.5 | Data collection

Recruitment took place from January to May 2020. Data collection occurred from September to November 2020 in eight specialist

rehabilitation care institutions in French-speaking Switzerland. A self-administered questionnaire was sent out to eligible potential participants via email, but they also received paper versions distributed by nurse managers, nurse clinicians or clinical nurse specialists. Nurses were asked to return their completed questionnaires via email or post (in a pre-paid envelope provided) to the investigator, who treated them confidentially. Two weeks after the start of data collection, all the potential participants were sent a reminder about the study.

3.5.1 | The Barriers to Nurses' Use of Physical Assessment Scale

The measurement instrument chosen to describe the perceived barriers to nurses performing physical assessments of their rehabilitation care patients was the validated French translation of the Barriers to Nurses' use of Physical Assessment Scale, created in 2014 by Douglas et al. (2014). Professor Douglas gave the investigator permission to use his scale in the present study. Gomes Fernandes and Epiney-Perruchoud, the researchers who translated and culturally adapted this scale in French in 2018, also gave their permission for its use (Epiney-Perruchoud, 2019; Gomes Fernandes, 2019).

The scale is composed of 38 items divided into seven subscales representing the following barriers to nursing physical assessment: 'reliance on others and technology' (nine items), 'lack of time and interruptions' (six items), 'ward culture' (six items), 'lack of confidence' (four items), 'lack of nursing role models' (four items), 'lack of influence on patient care' (four items) and the 'specialty area' (five items) (Douglas et al., 2014). Participants responded to each item on a 5-point Likert scale ranging from 1 (*completely disagree*) to 5 (*completely agree*) (Douglas et al., 2014). Following the scale's algorithm, a score was calculated for each subscale (Douglas et al., 2014). To the best of our knowledge, this scale is the only validated French language instrument measuring perceived barriers to nursing physical assessments.

3.5.2 | Sociodemographic and professional data

Sociodemographic and professional data were collected using a self-administered 10-item questionnaire created especially for the present study. Data included age, sex, years of professional nursing experience, years of professional nursing experience in rehabilitation, location and type of nursing training, any postgraduate training, current professional role and rate of activity.

3.6 | Data analysis

The study data were combined on an Excel spreadsheet and then imported into, coded and analysed using STATA software, version 16.1. Before any statistical analyses were computed, the data distributions

were analysed using the Kolmogorov–Smirnov test. Two key issues in surveys are the response rate and the management of missing values. We analysed the number of responses and missing values for each variable and reported them in our tables ($n = \text{answers}$). Missing value strategies (e.g. multiple imputations, mean score) were not used. Missing values were addressed based on best practices for cross-sectional studies.

Descriptive analyses used means (M), standard deviations (SD), medians (Med), interquartile ranges (IQR p25–p75), maximums (Max) and minimums (Min) to describe distributions of continuous variables (age, activity rate, number of years of nursing experience and number of years of nursing experience in rehabilitation) and discrete quantitative variables (the seven subscales of reliance on others and technology, lack of time and interruptions, ward culture, lack of confidence, lack of nursing role models, lack of influence on patient care and the specialty area). Dichotomous nominal variables (sex, nursing training location, type of nursing training, clinical role) and polytomous nominal variables (type of postgraduate training) were described using the number of respondents and percentages. Distributions of continuous quantitative variables were analysed using histograms, boxplots and statistical values, including skewness and kurtosis. None of the continuous quantitative variables in the study had a normal distribution. Discrete quantitative variables (reliance on others and technology, lack of time and interruptions, ward culture, lack of confidence, lack of nursing role models, lack of influence on patient care and specialty area) and the polytomous ordinal variable (frequency of use of physical assessment) all had normal distributions.

Association analyses between continuous quantitative variables (age, number of years of nursing experience, number of years of nursing experience in rehabilitation and activity rate) and discrete quantitative variables (reliance on others and technology, lack of time and interruptions, ward culture, lack of confidence, lack of nursing role models, lack of influence on patient care and specialty area) or the polytomous ordinal variable (frequency of use of physical assessment), were made using Kendall's tau (τ) correlation test. We chose this nonparametric test to verify the existence of a relationship between two quantitative variables. We did not use Pearson's parametric test because we observed extreme values in the distributions of some quantitative discrete variables. Association analyses between the same polytomous ordinal variable (frequency of use of physical assessment) but with dichotomous nominal variables (sex, nursing training location, type of nursing training and clinical role) and the polytomous nominal variable of type of postgraduate training were made using Fisher's exact test (F). This nonparametric test allows us to measure associations between two categorical variables containing small numbers (less than 5 per cell).

Comparative analyses between the dichotomous nominal variables (sex, nursing training location, type of nursing training and clinical role) and the discrete quantitative variables (reliance on

others and technology, lack of time and interruptions, ward culture, lack of confidence, lack of nursing role models, lack of influence on patient care and specialty area) were made using the Wilcoxon–Mann–Whitney rank-sum test. This nonparametric test allows us to compare the distributions of independent samples by checking the difference between the score ranks of two independent groups. In this test, the variable of interest must be quantitative and may contain outliers, which is the case for the quantitative discrete variables mentioned above. Comparative analyses between the polytomous nominal variable (type of postgraduate training) and the same discrete quantitative variables mentioned above, were made using the Kruskal–Wallis test. This nonparametric test allows us to check the difference between the ranks of the scores of three or more independent groups. It can also be performed on variables that are not quantitative, which is appropriate for the polytomous nominal variable of “type of postgraduate training”.

Predictive analyses of how the independent variables of “age”, “type of nursing training” and “type of postgraduate training” affected the dependent variables (reliance on others and technology, lack of time and interruptions, ward culture, lack of confidence, lack of nursing role models, lack of influence on patient care and specialty area) were performed using multiple linear regression models. These statistical analyses allow us to understand the simultaneous effects of two or more independent variables on a dependent variable, which is the case of the variables mentioned above.

The strengths of associations between nominal variables were evaluated using Cramer's V (V). The instrument's internal consistency was analysed using Cronbach's alpha (α) for each separate rehabilitation care unit. The threshold for significance was set at 5% bilaterally, creating a $p < 0.05$.

3.7 | Validity and reliability

Douglas et al. (2014) had the contents of the *Barriers to Nurses' use of Physical Assessment Scale* validated by a panel of experts. The content validity index (CVI) received an average score of 0.92, with a range from 0.90 to 0.98 (Douglas et al., 2014). Exploratory and confirmatory factor analyses showed that the scale adjusted adequately to the construct's underlying data, with a chi-squared of 1.90, a root mean square error of approximation of 0.05, and a comparative fit index of 0.91 (Douglas et al., 2014). The scale's internal consistency for all 38 items scored an overall Cronbach's alpha of 0.80, with Cronbach's alphas ranging from 0.70–0.86 for the seven subscales (Douglas et al., 2014). The corresponding scores for the French version of the scale, translated by Gomes Fernandes and Epiney-Perruchoud, scored a Cronbach's alpha of 0.75 for all 38 items and an intraclass correlation coefficient of 0.75 with a 98% confidence interval from 0.68 to 0.80 (Epiney-Perruchoud, 2019; Gomes Fernandes, 2019). Together, all these values indicate the translated version of the scale's reliability and internal consistency.

4 | RESULTS

4.1 | Participation rate

Of the 245 eligible participants, 47.71% ($n = 112$) participated by completing and returning the questionnaire, either by post (94.6%) or by email (5.4%) (Figure 1).

4.2 | Sociodemographic and professional characteristics

Our sample of respondents consisted of 81.2% women and 18.8% men, with a mean age of 38 years old. Respondents mean nursing experience was 13 years; their mean years of nursing experience in a rehabilitation care unit was 7 years. A total of 61.6% ($n = 69$) of the respondents had studied nursing in Switzerland, with 67.9% ($n = 76$) having studied at a University of Applied Sciences and Arts, and 83% ($n = 93$) holding a position as a registered nurse in a rehabilitation care unit. A total of 66.1% ($n = 72$) of the respondents had not completed any postgraduate training, and none held a Master of Advanced Studies (MAS) or a PhD in nursing. Finally, respondents' mean activity rate was 85% (Table 1).

4.3 | Estimated frequency of use of nursing physical assessments

A total of 45.95% of the respondents ($n = 51$) reported performing nursing physical assessments daily, with 24.32% ($n = 27$) estimating that they performed an assessment more than once a week but not daily. A total of 21.61% of the respondents ($n = 33$) declared that they performed nursing physical assessments less than once a week—of whom 13.51% ($n = 15$) performed an assessment more than once a month but less than once a week, 8.10% ($n = 9$) performed an assessment more than once per year but less than once per month, and 8.10% ($n = 9$) estimated that they never used nursing physical assessments or less than once per year (Figure 2).

4.4 | Perceived barriers to nursing physical assessments

Subscale means were calculated as per the algorithm developed by Douglas et al. (2014). The higher the mean score, the more the subscale was perceived as a significant obstacle to performing nursing physical assessments. The possible range of subscale means was

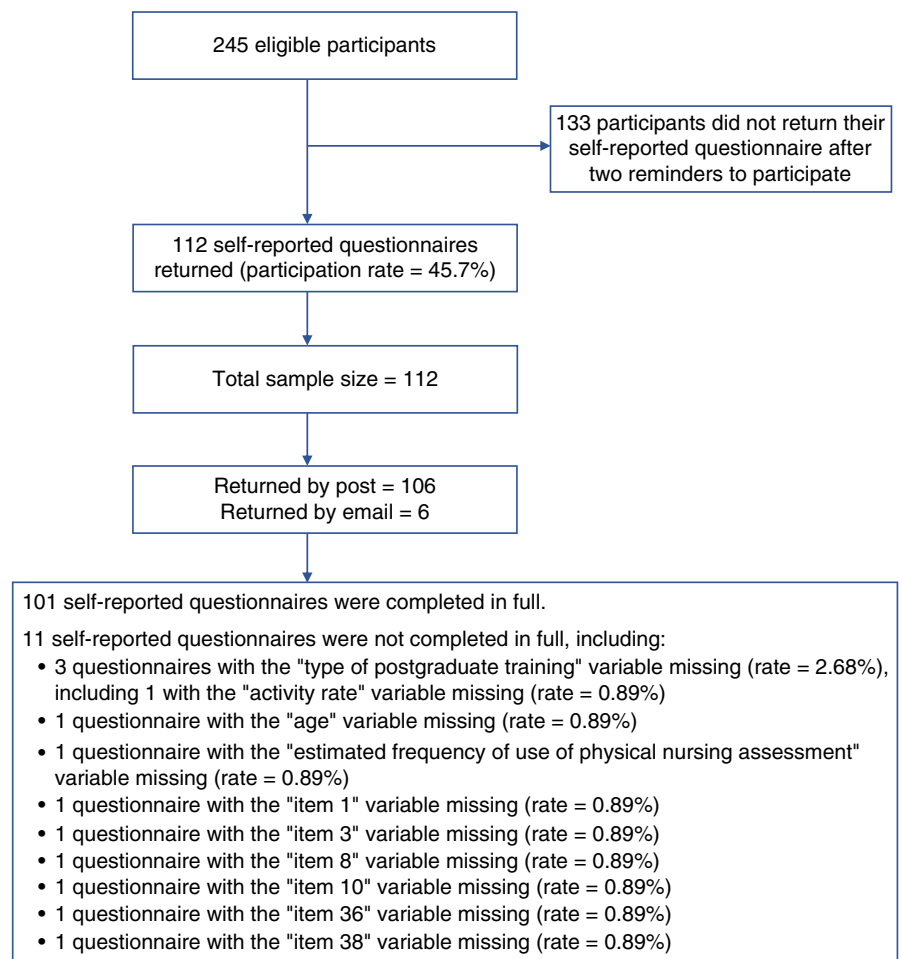


FIGURE 1 Study participation flowchart.

TABLE 1 Respondents' sociodemographic and professional characteristics ($n = 112$).

Characteristics	Variables	n (%)
Sex ($n = 112$)	Female	91 (81.25)
	Male	21 (18.75)
Nursing training location ($n = 112$)	Switzerland	69 (61.62)
	Other	43 (38.39)
Type of nursing training ($n = 112$)	University of Applied Sciences	76 (67.86)
	School of Higher Education	36 (32.14)
Clinical role ($n = 125$) ^a	Registered nurse	93 (83.04)
	Nurse educator	8 (7.14)
	Nurse manager	8 (7.14)
	Clinical nurse	7 (6.25)
	Others ^b	9 (8.40)
Type of postgraduate training ($n = 109$) ^c	No postgraduate training	72 (66.06)
	Certificate of Advanced Studies (CAS) in Clinical Assessment	3 (2.75)
	Other types of CAS	25 (22.94)
	Diploma of advanced studies (DAS)	8 (7.34)
	Master's degree	1 (0.92)
Activity rate ($n = 111$) ^c	Mean (SD)	85.12 (16.61)
	Median (IQR p^{25} - p^{75})	90 (80-100)
	Min-Max	30-100
Age ($n = 111$) ^c	Mean (SD)	38.65 (11.36)
	Median (IQR p^{25} - p^{75})	38 (28-47)
	Min-Max	23-64
Number of years of nursing experience ($n = 112$)	Mean (SD)	13.57 (11.89)
	Median (IQR p^{25} - p^{75})	7.75 (5-21.75)
	Min-Max	0.5-42
Number of years of nursing experience in rehabilitation ($n = 112$)	Mean (SD)	7.51 (6.50)
	Median (IQR p^{25} - p^{75})	5.75 (2-10.75)
	Min-Max	0.5-30

^aThe total rows ($n = 125$) exceed the number of participants ($n = 112$) because this was a multiple-choice question.

^bThe exact description of the other functions has not been collected.

^cIncludes missing data. The descriptive analyses were performed taking these into account.

from 1 to 5, with 5 being the highest. The subscales with the highest means were 'specialty area' ($M = 3.41$; $SD = 0.72$), the 'lack of nursing role models' ($M = 3.14$; $SD = 0.88$) and the 'lack of time and interruptions' ($M = 3.02$; $SD = 0.85$). The subscales of ward culture' ($M = 2.30$; $SD = 0.63$), 'lack of influence on patient care' ($M = 2.18$; $SD = 0.67$) 'and 'reliance on others and technology' ($M = 2.17$; $SD = 0.61$) had the lowest mean scores (Table 2).

4.5 | Comparative analyses

The results of our comparative analyses showed that female respondents ($Med = 3.33$; IQR p^{25} - $p^{75} = 2.83$ - 3.67) perceived a 'lack of time and interruptions' to be a bigger obstacle to performing nursing physical assessments than did their male colleagues ($Med = 2.17$; IQR p^{25} - $p^{75} = 1.83$ - 3.17 ; $p < 0.001$). However, because of the significant difference in size between the male and female subsamples of respondents, this result should be treated with caution. Results also showed that nurses ($Med = 2.30$; IQR p^{25} - $p^{75} = 1.67$ - 2.67) were significantly less likely ($p = 0.003$) to perceive 'ward culture' as an obstacle to using nursing physical assessments than respondents who held other positions on rehabilitation wards ($Med = 2.80$; IQR p^{25} - $p^{75} = 2.17$ - 3.33). Another significant difference ($p = 0.022$) was that respondents working as nurse specialists or nurse clinicians ($Med = 3.17$; IQR p^{25} - $p^{75} = 2.50$ - 3.67) perceived 'ward culture' to be more of an obstacle to performing nursing physical assessments than respondents holding other positions ($Med = 2.33$; IQR p^{25} - $p^{75} = 1.83$ - 2.67). Another significant statistical difference ($p = 0.004$) was that respondents holding a Certificate of Advanced Studies (CAS) in clinical evaluation ($Med = 3.17$; IQR p^{25} - $p^{75} = 2.50$ - 3.33) or a Diploma of Advanced Studies (DAS) ($Med = 3.17$; IQR p^{25} - $p^{75} = 2.66$ - 3.58) were more likely to perceive ward culture as an obstacle to nursing physical assessments.

4.6 | Correlation analyses

There was a weak negative correlation between a nurse's years of professional experience in a rehabilitation care unit and the frequency with which they performed nursing physical assessments ($r = -0.15$; $p = 0.042$), that is, as the years of experience rose, the number of nursing physical assessments performed fell. Results also showed a weak but statistically significant association between nurse specialists and nurse clinicians and the frequency of use of nurse physical examinations ($p = 0.047$; $V = 0.26$). These respondents were more likely to state that they performed nursing physical assessments once a week or less (nurse specialists/clinicians = 71.4%; others = 26.9%) and less likely to state that they performed them daily (nurse specialists/clinicians = 28.6%; others = 47.1%).

4.7 | Predictive analyses

Two of our multivariate regression models turned out to be significant. The first model demonstrated that the respondents with a CAS in clinical evaluation had a mean 'ward culture' subscale score 0.78 points higher than respondents with no postgraduate training ($p = 0.022$). Indeed, respondents with a DAS had a mean 'ward culture' subscale 0.85 points higher than those without

FIGURE 2 Estimated frequency of use of nursing physical assessment ($n = 111^a$). (^a1 missing data point).

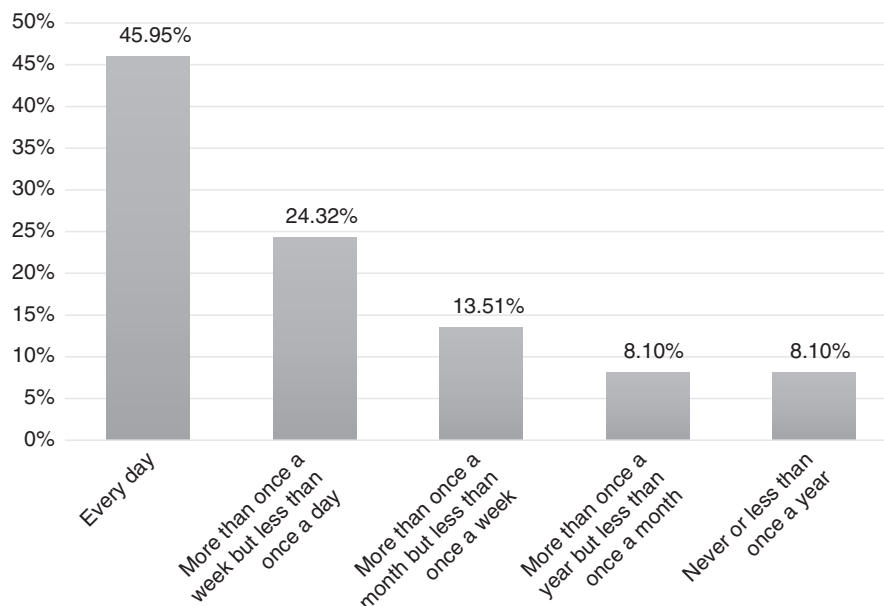


TABLE 2 Descriptive analyses of the subscales.

Variables ^a	Mean (SD)	Median (IQR ^{p25-p75})	Min-max
Specialty area	3.41 (0.72)	3.60 (3.00–4.00)	1.00–5.00
Lack of nursing role models	3.14 (0.88)	3.25 (2.50–3.75)	1.25–5.00
Lack of time and interruptions	3.02 (0.85)	3.17 (2.50–3.67)	1.00–4.50
Lack of confidence	2.80 (1.00)	2.75 (2.00–3.50)	1.00–5.00
Ward culture	2.30 (0.63)	2.33 (1.83–2.66)	1.00–3.83
Lack of influence on patient care	2.18 (0.67)	2.00 (1.75–2.75)	1.00–4.50
Reliance on others and technology	2.17 (0.61)	2.11 (1.77–2.55)	1.00–3.78

^aSubscale scores were calculated using the Douglas et al. (2014) algorithm.

TABLE 3 Multiple regression analysis of the effects of postgraduate training on the variables of “Ward culture” and “Lack of nursing role models” ($n = 109$).

Variables	Ward culture coefficient (p)	95% CI	Lack of nursing role models coefficient (p)	95% CI
Postgraduate training				
Certificate of Advanced Studies in clinical assessment	0.78 (0.022)	0.11–0.46	0.29 (0.559)	–0.71 to 1.30
Other types of certificates of Advanced Studies	0.12 (0.350)	–0.13 to 0.39	0.09 (0.636)	–0.30 to 0.49
Diploma of Advanced Studies	0.85 (<0.00)	0.42–1.27	1.02 (0.002)	0.38–1.66
Master's degree	–0.21 (0.715)	–1.36 to 0.93	–0.03 (0.968)	–1.76 to 1.69
No postgraduate training	2.21 (<0.001)	2.07–2.34	3.03 (<0.001)	2.83–3.23
F (p)	5.09 (<0.001)		2.59 (0.041)	
Adjusted R ²	0.1314		0.0555	

Abbreviation: CI, confidence interval.

postgraduate training ($p < 0.001$). The second significant multivariate regression model demonstrated that the respondents with a DAS had a mean ‘lack of nursing role models’ subscale score 1.03 points higher than those without postgraduate training ($p = 0.002$) (Table 3).

4.8 | Analysis of the instrument's internal consistency

A calculation of the overall internal consistency of the *Barriers to Nurses' use of Physical Assessment Scale's* 38 items, as used in our

TABLE 4 Analysis of the internal consistency of the measurement instrument's subscales using Cronbach's alpha.

Variables	Cronbach's alpha coefficient
Reliance on others and technology	0.72
Lack of time and interruptions	0.81
Ward culture	0.61
Lack of confidence	0.90
Lack of nursing role models	0.71
Lack of influence on patient care	0.51
Specialty area	0.66

self-reported questionnaire of rehabilitation care units, resulted in the excellent Cronbach alpha score of 0.87. Its constituent subscales presented Cronbach alphas ranging from 0.51 to 0.90, indicating their moderate to strong internal consistency (Table 4). In comparison, Douglas et al.'s (2014) original calculation for all 38 items resulted in a Cronbach alpha of 0.80, and Gomes Fernandes (2019) and Epiney-Perruchoud (2019) had a Cronbach alpha of 0.75. Our internal consistency was significantly higher than these.

5 | DISCUSSION

The present study aimed to describe what nurses perceived as the barriers to them performing nursing physical assessments in the rehabilitation care units where they worked and identify whether the staff's sociodemographic and professional characteristics influenced those perceptions. Our results showed that almost 46% of the nurses who responded to our self-reported questionnaire related performing nursing physical assessments daily, but nearly a further 30% declared that they performed such an evaluation less than once per week. These findings clearly show the use of nursing physical assessments in rehabilitation care units to be heterogeneous and far from being systematically integrated into nursing care practices.

Birks et al. (2013), Cicolini et al. (2015), Shi et al. (2020) and Osborne et al. (2015) also identified that the use of these physical assessment techniques was not routinely integrated into the nursing care facilities they examined. Their studies identified several barriers that explained that situation, such as nurses lacking confidence in their abilities, a lack of time and a lack of encouragement to perform evaluations. Our findings, however, indicated that the perceived primary barriers to performing nursing physical assessments were the specialty area of rehabilitation care itself, the lack of nursing role models and the lack of time and interruptions. These are all barriers linked to nurses' working environments. Douglas et al. (2014), Gomes Fernandes (2019) and Epiney-Perruchoud (2019) also described the barriers to the use of nursing physical assessments using the *Barriers to Nurses' use of Physical Assessment Scale*. Their findings also showed that the specialty area, the lack of nursing role models and the lack of time and interruptions were the main perceived

barriers. This similarity with the present results highlights that whatever the nurses' clinical specialty, their working environment exerts a noteworthy influence on their use of nursing physical assessments. The present study rests on the theoretical framework of Bandura's theory of self-efficacy (Bandura, 2019). This social cognitive theory posits that the working environment is one of the determining factors of individuals' behaviours through its influence on their feelings of self-efficacy (Bandura, 2019). Thus, our results were consistent with this posit because they showed that three primary perceived barriers to using nursing physical assessments were linked to nurses' institutional working environments.

About the specialty area being scored as the biggest perceived obstacle in our study, several publications have also observed that the physical assessment techniques used depended on the nurses' clinical specialty (Cicolini et al., 2015; Osborne et al., 2015; Shi et al., 2020). For example, the results of Osborne et al.'s (2015) study indicated that nurses working in surgery departments used physical assessments almost twice as much as those working in mental health. Because our study took place in a single clinical specialty, we could not make any comparisons of this type. Nevertheless, one hypothesis for explaining why the specialty area was scored as the biggest obstacle to the use of nursing physical assessments in our rehabilitation care units might be that some survey respondents do not perform them in the knowledge that other health care professionals will be carrying out very complete, competent evaluations of their patients. This phenomenon was observed in the study by Birks et al. (2013), where participants working in interdisciplinary clinical environments declared that they did not perform comprehensive nursing physical assessments. Indeed, they admitted to leaving this task to other healthcare professionals, but this contributed to atrophying their own skills in this area (Birks et al., 2013). This explanation might also seem to make sense in rehabilitation care units, where there is significant interprofessional collaboration (FOPH, n.d.; Garlepp, 2015).

The obstacle of 'lacking time and interruptions', the second highest scored obstacle in our findings, refers to how nursing workloads and work organization impede nurses from having enough uninterrupted time slots to carry out comprehensive and competent physical assessments (Douglas et al., 2014). Birks et al. (2013) observed that in the diverse clinical settings where their study participants worked, the ever-increasing number of administrative tasks that nurses had to do was one reason for their lack of time. Owing to the increasing acuteness and complexity of the health statuses of patients in rehabilitation care units, as well as their growing number, it is very probable that nurses' workloads have intensified. This would explain this perceived obstacle's prominence very well.

About the obstacle of a 'lack of nursing role models'—the third highest-scored perceived obstacle in our study—the previous findings of Shi et al. (2020) and McElhinney (2010) demonstrated that a lack of mentoring and support from peers was associated with lower rates of use of nursing physical assessments. Massey et al. (2016) indicated that support from peers was judged to be an important factor in all six of the studies included in their integrative literature

review. Indeed, certain participants in those studies actively sought out and consulted more experienced nurses because they needed their help and support to recognize and react to patients' deteriorating health statuses (Massey et al., 2016).

Our results indicated that female respondents to our self-reported questionnaire perceived a lack of time and interruptions to be a comparatively greater obstacle than did their male colleagues. We found no other studies that had observed this difference. However, this result may be somewhat imprecise because of the relatively low number of men who responded to our self-reported questionnaire ($n = 21$; 18.75%). We might hypothesize that male participants were more likely to be in positions of responsibility (e.g. team management) within institutions and therefore less likely to be at the bedside, thus explaining why they perceived "lack of time and interruption" to be less of a barrier than did female participants. This is a possible explanation, although our research findings do not support it.

Our results also showed that respondents who held a DAS were more likely to perceive a 'lack of nursing role models' to be a significant obstacle than were respondents who had not undergone any postgraduate training. In Switzerland, nurses who hold a Diploma of Advanced Studies are considered nurse clinicians. They have followed a rigorous certified training course that has developed their skills to take on a role as a clinical expert and an agent of change in their care unit (Ninane et al., 2018). The hypothesis we have drawn is that because their postgraduate training has led them to become the experts in their care units, to disseminate good nursing practices and to show the way forward, nurses holding a DAS may have become more sensitive to the lack of nursing role models in their care unit than their colleagues.

Our results also showed that survey respondents with a CAS in clinical evaluation, or a DAS or those with the role of nurse clinician or nurse specialist, perceived 'ward culture' to be a more significant obstacle to the use of nursing physical assessments than did other nurses. According to Douglas et al. (2014), 'ward culture' refers to the habits ingrained into a care unit that put limitations on staff's use of nursing physical assessments and to the lack of interest colleagues might have in performing them. One hypothesis for this result is that their professional position or their postgraduate training encouraged them to promote nursing physical assessments and perform them in an exemplary manner. Thus, compared with other survey respondents, more qualified nurses may be more frequently confronted by this obstacle.

Our results indicated that as the number of years of professional experience in rehabilitation units increased, the frequency of use of nursing physical assessments diminished. Osborne et al. (2015) and Shi et al. (2020) made the same observation. Osborne et al. (2015) suggested that this difference was linked to the fact that more experienced nurses often had positions with more responsibility but less direct contact with patients. Another hypothetical explanation is that more experienced nurses, the majority of whom had not undergone a university-level nursing education, have had less extensive training in nursing physical assessment. Indeed, physical

assessments were long considered the prerogative of physicians and were not systematically taught to nurses (Lindpaintner et al., 2009). In Switzerland, at the start of the 2000s, when nursing studies began to be taught in Universities of Applied Sciences, training programs were re-evaluated, and teaching about clinical evaluation was reinforced and deepened (Lindpaintner et al., 2009). Respondents to our self-reported questionnaire who had undergone their nursing training in Schools of Higher Education thus had less extensive knowledge of physical assessment than those who had trained to bachelor's degree level. Additionally, the time elapsed between more experienced nurses' initial training may have led some of them to forget specific techniques in physical assessment. These diverse hypotheses may thus explain why the more experienced nurses were, the fewer physical assessments they performed. About their initial nursing training, one third of the nurses responding to our study survey did their nursing studies in a School of Higher Education, and another third had done their nursing training abroad. This leads us to believe that our study participants had very heterogeneous levels of competency in performing nursing physical assessments. One participant noted on their questionnaire that, "My problem is a lack of training on this subject."

Finally, our results showed that nurse clinicians and nurse specialists were more likely to report performing physical assessments once per week or less, and less likely to report performing them daily than other participants in our survey. It may be that their positions as nurse clinicians or nurse specialists implied so many other tasks and responsibilities that they had less time available to spend at patients' bedsides, further helping to explain the differences we observed. Again, these results agreed with the postulates of our study's theoretical framework—Bandura's theory of self-efficacy—which supposes that a person's individual characteristics influence their feelings of self-efficacy and the outcomes they expect from the behaviours that they adopt (Bandura, 2019). Indeed, our results revealed that the type of nursing education undergone, the number of years of experience and postgraduate training all exerted an influence on nurses' perceptions of the barriers to them performing physical assessments of their patients and the frequency with which they performed them.

6 | STRENGTHS AND LIMITATIONS

To the best of our knowledge, the present study was the first to have explored the perceived barriers to performing nursing physical assessments in rehabilitation care units. It provides new knowledge on this theme in this specialty area. One of its strengths is that it was a multicentre study, which increased the sample's representativity. One limitation, however, is that the study focused solely on French-speaking Switzerland, which restricts its external validity. Another strength was our survey response rate, which was 45.7% of eligible rehabilitation care unit nurses despite the COVID-19 pandemic's harsh effects on Switzerland's hospital wards during the data collection period (FOPH, n.d.).

One limitation was that our measurement instrument—*Barriers to Nurses' use of Physical Assessment Scale*—had never before been validated outside the specialties of acute care (Douglas et al., 2014). Because rehabilitation care does not fall within this category, there may have been barriers unique to this specialty that were not investigated. Data on the frequency with which nursing physical assessments were performed came from answers to a self-administered questionnaire, which could have been subject to recall bias. Direct observation of nursing practices would have been a more reliable means of collecting these data. Another limitation is that we cannot exclude the possibility of social desirability bias. Survey participants knew that the study's results, although coded and anonymized, would be made available to their places of employment, and they may have adjusted some of their replies to fit their employers' expectations.

7 | CONCLUSION

The rising acuteness and complexity of the health statuses of patients admitted to rehabilitation care units has increased the risks of them suffering health complications. Comprehensive, standardized, structured, systematic nursing physical assessments enable the early detection of those complications. However, this study reveals that most nurses working in the rehabilitation care units that took part in the present research did not systematically perform physical assessments as part of their daily clinical practice. The study identified the factors that nurses perceived to be the biggest barriers to their use of nursing physical assessments. The three predominant barriers were linked to nurses' working environments. Certain personal and professional characteristics were also identified as being significant. These results corroborated the postulates found in Bandura's theory of self-efficacy, where the working environment and personal characteristics are among the determining factors of feelings of self-efficacy and thus the adoption of behaviours, such as the use of nursing physical assessments. This theory also enabled us to think about potential interventions for reinforcing and enhancing nursing physical assessments in rehabilitation care units.

One recommendation for clinical practice is to put in place effective interventions, such as continuing education or hiring more highly qualified nurses to act as role models. About future research in this area, there is a need for mixed or qualitative observational studies to confirm and deepen the present study's results. Running interventional studies would also enable an assessment of these proposals for reinforcing and enhancing the use of nursing physical assessments in rehabilitation care units. With regard to nursing education and teaching, we advocate strengthening the mentoring of nursing physical assessments for nursing students undergoing their practical training. This will help to instil the integration of physical assessment's different techniques into their set of skills early on in their careers. We also recommend that the techniques of physical assessment that are taught during nursing studies are appropriate and adequate to meet the requirements of current clinical practice.

ACKNOWLEDGEMENTS

The authors acknowledge all the participants in this study who agreed to give up their valuable time to answer and return their questionnaires. They also thank the directors of care, head nurses and clinical or specialized nurses in the participating institutions for their availability and collaboration during data collection. Open access funding provided by Haute Ecole Spécialisée de la Suisse Occidentale.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/jan.15615>.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Lorena Da Veiga Gonçalves  <https://orcid.org/0000-0003-0647-8403>

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How to cite this article: Da Veiga Gonçalves, L., Latanioti, M., Latif, S., Verloo, H., & Pereira, F. (2023). Barriers to nurses performing physical assessments in rehabilitation care units: An observational study. *Journal of Advanced Nursing*, 79, 3057–3068. <https://doi.org/10.1111/jan.15615>

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