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Barriers to physical assessment skills in nurses and nursing students: a comparative-descriptive cross-sectional study

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Abstract

Research Problem/Aim: Physical assessment is an integral part of nursing interventions and an important learning outcome of nurse training programs. This paper investigated impediments preventing nurses and nursing students from putting physical assessment skills into practice.

Method: This was a comparative-descriptive and cross-sectional study. The sample consisted of 95 nurses and 118 nursing students. Data were gathered using a Demographic Characteristics Questionnaire, a Physical Assessment Knowledge and Practice Questionnaire, and the Barriers to Nurses' Use of Physical Assessment Scale.

Findings: Nurses and students had a mean age of 30.53±7.14 and 21.80 ±0.77, respectively. Most nurses (87.3%) and students (96.6%) stated that they used physical assessment skills in clinical settings. Nurses had a mean Barriers to Nurses' Use of Physical Assessment Scale "lack of time and interruptions," "lack of influence on patient care," subscale score of 3.30±0.69, 3.77±0.79, respectively. Students had a mean the Barriers to Nurses' Use of Physical Assessment Scale "lack of time and interruptions" and "lack of influence on patient care," subscale score of 3.36±0.65, and 3.96±0.75, respectively. Students had a higher mean Barriers to Nurses' Use of Physical Assessment Scale "ward culture" subscale score than nurses (p=0.001).

Conclusion: Students had a significantly higher Barriers to Nurses' Use of Physical Assessment Scale "ward culture" subscale score than nurses. The barriers preventing participants from using physical assessment skills mainly were the "lack of influence on patient care," "lack of time and interruptions," and "specialty area." Educators should encourage nursing students to develop physical assessment skills and put them into practice in laboratories. Hospital administrators should provide nurses with in-service training to execute their physical assessment skills in real-life clinical settings.

Keywords: Barrier; nurse; nursing students; physical assessment

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Introduction

Health assessment is an essential component of the professional and holistic nursing approach. It consists of three stages: history taking, physical assessment (or examination), and data recording (Eyüpoğlu & Çalışkan, 2019; Görgülü, 2014). The first step towards safe and competent nursing care is using physical assessment skills (Potter et al., 2016). Physical assessment helps healthcare professionals identify health status changes and plan holistic care (Osborne et al., 2015). Physical assessment is a systematic data collection method used to identify health problems through the senses of vision, hearing, smell, and touch (Craven et al., 2015; Görgülü, 2014). Based on the developments in nursing roles, nurses today are responsible for performing physical assessments. According to the Turkish Nursing Regulation, physical assessment is a nursing intervention based on nurses' decisions (Birks et al., 2013; Fennessey & Wittmann- Price, 2011; Official Gazette, 2011).

Nurses should have professional knowledge and skills to perform physical assessments (Albougami, 2020). Douglas et al. (2016) state that physical assessments performed by nurses are critical to intervene as early as possible and to make patients feel safe. However, research shows that physical assessment methods are underemphasized in undergraduate nursing courses and underutilized by nurses (Chua & Liaw, 2016; Çalışkan et al., 2020; Giddens, 2007; Osbornne et al., 2015). The barriers to physical assessment are workload (Fennessey & Wittmann, 2011; Koç & Sağlam, 2012); high patient-to-nurse ratio (Koç & Sağlam, 2012); lack of knowledge, skills (Çalışkan, 2020; Kunter & Gezer, 2021), time (Birks et al., 2013; Fennessey & Wittmann, 2011), role models, and self-confidence (Douglas et al. 2014; Eyüboğlu & Çalışkan, 2019); the misconceptions that physical assessment is physicians' responsibility (Koç & Sağlam, 2012) and that it has little to no effect on care (Eyüboğlu & Çalışkan, 2019).

Physical assessment consists of theoretical (academic) and applied skills, which are key to providing quality care. Nurses with physical assessment skills are likely to plan care better (Alquwez et al., 2019). Therefore, educational programs are instrumental in helping students develop physical assessment skills (Albougami, 2020). Evaluating students' ability to use physical assessment skills is an essential part of patient safety and quality care (Albougami, 2020). However, those skills are underutilized because they are covered mainly by elective courses, which some universities do not offer (Çalışkan et al., 2020; Dougles et al., 2015). Students believe that physical assessments are necessary but occasionally perform them in clinical settings (Byermoen et al., 2021). What is more, Giddens and Eddy (2009) argue that there is a difference between the physical assessment skills students learn at college and the ones they observe nurses practice in real-life clinical settings, causing considerable inconvenience. Doğdu et al. (2021) stated that the ward culture and lack of time were the barriers preventing nursing students from using physical assessment skills. Moreover, there is a difference between the physical assessment skills students learn at college and the ones they use in real-life clinical settings (Morell et al., 2021). The barriers to physical assessment skills beg for investigation because if we identify them and solve them, we can help students and nurses use more physical assessment skills in clinical settings. Therefore, this paper investigated the barriers preventing nursing students and nurses from using physical assessment skills in clinical settings.

Research Questions

1. How well do nurses and nursing students know physical assessment skills?
2. How often do nurses and nursing students use physical assessment skills?
3. What prevents nurses and nursing students from using physical assessment skills?
4. Is there a difference in the previous three items between nurses and nursing students?

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Methods

Design

This paper investigated the barriers preventing nurses and nursing students from putting physical assessment skills into practice. This was a comparative-descriptive and cross-sectional study because it compared nurses and nursing students.

Participants

The study population consisted of all fourth-year nursing students at a university and nurses of the university hospital. The hospital employs 690 nurses with a bachelor's or master's degree. There were 162 fourth-year students in the nursing department in the 2019-2020 academic year. All students and nurses willing to participate were included in the study. Those who declined to participate were excluded from the study. The sample consisted of 118 nurses (17% participation rate) and 95 students (58% participation rate) who volunteered and completed data collection tools.

Data collection

The data were collected using a demographic characteristics questionnaire, a Physical Assessment Knowledge and Practice Questionnaire, and the Barriers to Nurses' Use of Physical Assessment Scale.

The six-item demographic characteristics questionnaire was based on a literature review conducted by the researchers (Dougles et al., 2014; Dougles et al., 2015; Giddens & Eddy, 2009).

The Physical Assessment Knowledge and Practice Questionnaire (PAKPQ) was based on a literature review conducted by the researchers (Dougles et al., 2014; Dougles et al., 2015; Giddens & Eddy, 2009). The questionnaire consisted of 40 items on the most common physical assessment skills nurses' use. The questionnaire consisted of two parts: knowledge and practice. The items in the "knowledge" part were answered either "I know" or "I do not know". The items in the "practice" part were answered "Always", "Sometimes", or "Never".

The Barriers to Nurses' Use of Physical Assessment Scale (BNUPAS) was developed by Douglas et al. (2014) and adapted to Turkish by Korkmaz et al. (2018). The scale consists of 30 items and six subscales: reliance on others and technology, lack of time and interruptions, ward culture, lack of confidence, lack of influence on patient care, and specialty area. The items are scored on a five-point Likert-type scale (1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly Agree). The total score is the sum of the average scores of the subscales. Each subscale score ranges from 1 to 5. Higher scores indicate higher perceived barriers. Korkmaz et al. (2018) found the Cronbach's alpha to be 0.82, which was 0.75 in the present study.

The data were collected between December 15, 2019, and April 15, 2020. We set appointments with nurses and collected data at their convenience. We collected data from students in their free time. Data collection took 15-20 minutes.

Ethical Considerations

The study was approved by the Scientific Research Ethics Committee of the Faculty of Medicine of the Karadeniz Technical University (No: 24237859-167). Written permission was obtained from the hospital (02.12.2019-E.1098) and the university (63582098/299). All participants were informed of the research topic and that the data would be used only for scientific purposes and would not be shared with third parties. Participation was voluntary.

Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, v 23.0). The number, percentage, and mean were used for descriptive data. The Chi-square test was used for between-group comparisons. The data were not normally distributed. Therefore, the Mann-Whitney-U Test was used to compare scale scores.

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Results

Nurses had a mean age of 30.53±7.14 (84.2% women). Nursing students had a mean age of 21.80 ±0.77 (89.8% women). Most nurses (87.3%) and students (96.6%) stated that they used physical assessment skills in clinical settings. More than half the nurses (57.9%) and most of the students (76.3%) noted that they had been trained in physical assessment skills before. Less than half the nurses (46.3%) and students (43.2%) noted that they generally used physical assessment skills. Most nurses (89.5%) and students (93.2%) stated that they would like to receive training on physical assessment skills (Table 1).

Table 1. Demographic Characteristics

	Nurses (n=95)	**Students (n=118)**
Mean age	30.53±7.14	21.80 ±0.77
	n (%)	**n (%)**
Gender		
Woman	80 (84.2)	106 (89.8)
Man	15 (15.8)	12 (10.2)
Using physical assessment skills in clinics		
Yes	83 (87.3)	114 (96.6)
No	12 (12.7)	4 (3.4)
Having been trained on physical assessment skills before		
Yes	55 (57.9)	90 (76.3)
No	40 (42.1)	28 (23.7)
Frequency of using physical assessment skills		
Never	5 (5.2)	2 (1.7)
Rarely	11 (11.6)	17 (14.4)
Occasionally	32 (33.7)	44 (37.3)
Generally	44 (46.3)	51 (43.2)
Always	3 (3.2)	4 (3.4)
Willingness to receive training on physical assessment skills		
Yes	85 (89.5)	110 (93.2)
No	10 (10.5)	8 (6.8)

There was a significant difference in PAKPQ scores between nurses and students ($p<0.05$). In other words, the groups differed by how well they knew physical assessment skills ($p<0.05$). Nurses knew about skin and lesions, trachea, peripheral pulse, and peripheral blood flow assessment skills better than students. However, students knew other assessment skills better than nurses (Table 2).

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Table 2. PAKPQ Knowledge Scores

Physical Assessment Skills	Nurses		Students		X²**	p***
	Knows	Does Not Know	Knows	Does Not Know		
	n (%)	n (%)	n (%)	n (%)		
Skin lesions*	81 (91.6)	6 (6.3)	108 (91.5)	10 (8.4)	7.530	**0.029**
Edema grades	90 (94.8)	5 (5.3)	116 (98.3)	2 (1.6)	8.424	**0.038**
Hair and nails	83 (87.4)	12 (12.6)	117 (99.2)	1 (0.8)	15.551	**0.000**
Mouth and pharynx	72 (75.8)	23 (24.2)	112 (94.9)	6 (5.1)	23.578	**0.000**
Nose and sinuses	54 (56.9)	41 (43.1)	87 (73.7)	31 (26.2)	12.761	**0.003**
Extraocular movement of the eye	54 (56.8)	41 (43.2)	80 (67.8)	38 (22.2)	6.740	**0.049**
External eye structures	51 (53.7)	44 (46.3)	76 (64.4)	42 (35.6)	6.967	**0.017**
Trachea*	43 (45.3)	52 (54.7)	41 (34.7)	77 (65.3)	6.487	**0.039**
Palpation of axillary nodes	37 (39)	58 (61)	57 (48.3)	61 (51.6)	7.450	**0.030**
Respiratory sounds	77 (80.1)	74 (77.9)	103 (87.3)	15 (12.7)	6.848	**0.040**
Chest and thorax	57 (58)	38 (40)	79 (66.9)	39 (33.1)	5.290	**0.041**
Breast and axilla	61 (65.3)	33 (34.7)	100 (84.7)	18 (15.2)	17.412	**0.000**
Heart murmur auscultation	36 (37.9)	59 (62.1)	66 (55.9)	52 (44.1)	12.647	**0.007**
Peripheral pulse*	91 (95.8)	4 (4.2)	102 (86.4)	16 (13.6)	7.691	**0.012**
Peripheral blood flow*	74 (77.9)	21 (22.1)	77 (65.3)	41 (34.7)	6.680	**0.049**
Abdominal palpation	50 (52.6)	45 (47.4)	86 (72.9)	32 (27.1)	14.035	**0.003**
Abdominal percussion	41 (43.2)	54 (56.8)	67 (56.8)	51 (43.2)	8.162	**0.025**
Peritoneal tenderness	35 (36.8)	60 (63.2)	68 (57.6)	48 (40.7)	15.155	**0.001**
Bowel sounds	64 (67.4)	31 (32.6)	98 (83.1)	20 (16.9)	11.632	**0.005**
Deep tendon reflexes	45 (47.4)	50 (52.6)	83 (70.3)	35 (29.7)	19.676	**0.000**
Joints	50 (52.6)	42 (44.2)	82 (69.5)	36 (30.5)	8.839	**0.007**
Gait and coordination	65 (68.4)	26 (27.4)	106 (89.8)	12 (10.2)	11.695	**0.001**

* Physical assessment skills that nurses know better than students
** Chi-square test
***Only significant difference

Students assessed hair and nails, mouth and pharynx, nose and sinuses, extraocular movement of the eye, inner eye structures, palpation of neck lymph nodes, palpation of axillary nodes, peripheral pulse, abdominal palpation, speech functions, deep tendon reflexes, sensory state, and joints significantly more often than nurses ($p<0.05$). Nurses assessed only carotid arteries more often than students ($p<0.05$) (Table 3).

Table 3. PAKPQ Practice Scores

Physical Assessment Skills***	Nurses			Students			X²*	p***
	Always	Sometimes	Never	Always	Sometimes	Never		
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)		
Hair and nails	33 (34.7)	41 43.2)	18 (18.9)	48 (40.7)	62 (52.5)	8 (6.8)	11.557	**0.009**
Mouth and pharynx	28 (29.5)	37(38.9)	26 (27.4)	29(24.6)	72 (61.0)	17 (14.4)	14.829	**0.002**
Inner eye structures	13 (13.7)	15 15.8)	64 (67.4)	4 (3.4)	31 (26.3)	83 (70.3)	13.459	**0.004**
Palpation of neck lymph nodes	6 (6.3)	24 25.3)	58 (61.1)	3 (2.5)	40 (33.9)	75 (63.5)	12.603	**0.013**
Palpation of axillary nodes	3 (3.2)	17 17.9)	69 (72.6)	5 (4.2)	30 (24.5)	83 (70.3)	9.007	**0.029**
Peripheral pulse	61 (64.2)	26 27.4)	6 (6.3)	52 (44.1)	42 (35.6)	24 (20.3)	14.973	**0.002**
Carotid arteries*	12 (12.6)	50 52.6)	31 (32.6)	11 (9.3)	39 (33.1)	68 (57.6)	14.922	**0.002**
Abdominal palpation	12 (12.6)	32 33.7)	49 (51.6)	14 (11.9)	61 (51.7)	43 (36.4)	9.212	**0.027**
Speech functions	44 (46.3)	25 26.3)	24 (25.3)	40 (33.9)	49 (41.5)	29 (24.6)	8.056	**0.045**
Deep tendon reflexes	12 (12.6)	22 23.2)	59 (62.1)	26 (22)	41 (34.7)	51 (43.2)	11.116	**0.011**
Joints	16 (16.8)	29 30.5)	44 (46.3)	23 (19.5)	45 (38.1)	49 (41.5)	9.613	**0.047**

*Nurses assess carotid arteries more often than students.
**Chi-square test
***Only significant difference

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Students had a higher mean BNUPAS "ward culture" score than nurses (p=0.001) (Table 4). There was no significant difference in the other subscale scores between the two groups (Table 4).

Table 4. BNUPAS Scores

BNUPAS	Nurses (n=95) $\bar{x} \pm SD$	Students (n=118) $\bar{x} \pm SD$	Statistics U	p*
Reliance on others and technology	2.51 ±0.61	2.37±0.53	4241.0	0.080
Lack of time and interruptions	3.30±0.69	3.36±0.65	4725.5	0.482
Ward culture	2.59±0.62	2.91±0.63	3542.0	**0.001**
Lack of confidence	2.69±0.60	2.81±0.57	4498.0	0.207
Lack of influence on patient care	3.77±0.79	3.96±0.75	4268.5	0.068
Specialty area	3.03±0.66	2.86±0.71	4452.0	0.167
Total	2.97±0.37	3.04 ±0.34	4365.5	0.241

*Mann-Whitney-U test

Discussion

Nurses play an essential role in identifying the changes in patients' health status (Osborne et al., 2015). Nurses and nursing students should use physical assessment skills within the scope of health assessment (Craven et al., 2015; Potter et al., 2016). Therefore, it is vital to identify the obstacles preventing them from putting physical assessment skills to use in clinical settings.

Our nurse participants knew how to assess skin and lesions, trachea, peripheral pulse, and peripheral blood flow better than our student participants (Table 2) ($p<0.05$). This result indicates that nurses know fewer physical assessment skills than students, which may be related to the fact that 76.3% of the students but only 57.9% of the nurses had been trained on physical assessments before (Table 1). It may also be because students have more fresh knowledge than nurses. Students also put their physical assessment skills to use more often than nurses (Table 3). This may be because instructors expect students to use physical assessment skills during clinical clerkship. Most students performed the physical assessment skills of inspection and palpation (Table 3). Although most participants stated that they knew how to use many of the physical assessment skills (Table 2), the number of skills they "always" put into practice was limited (Table 3). Çalışkan et al. (2020) reported that most nurses and students knew physical assessment skills and used them. However, Shi et al. (2020) found that nurses regularly used only 15.36% of physical assessment skills and frequently used only 17.49% of them. Our results are consistent with the literature. Therefore, we can conclude that nurses use their routine skills more often than other skills.

More than half the nurses (57.9%) and most of the students (76.3%) stated that they had been trained in physical assessment skills before. Most nurses (87.3%) and students (96.6%) stated that they used physical assessment skills in clinical settings. However, less than half the nurses (46.3%) and students (43.2%) actually put those skills to use in clinics (Table 1). This result suggests that although nurses and students claim to use physical assessment skills quite often, they actually do not. Afifi (2017) reported that nursing students underutilized physical assessment skills. Dougles et al. (2015) argue that students learn only three out of ten physical assessment skills in school and use them in clinics. According to Zambas (2010), academics provide a scientific explanation for physical assessment skills and teach students how to identify symptoms and signs and diagnose patients, but students rarely use those skills in clinical practice. The difference in results may be due to the differences in the training programs and application areas in the units where those studies were conducted. Nursing education has an important place in teaching physical assessment skills. Students can put their theoretical knowledge of physical assessment skills into practice in labs and clinics (Salas & Griffin, 2015).

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Students had a higher mean BNUPAS "ward culture" score than nurses ($p<0.05$) (Table 4), indicating that the culture dominating the clinical atmosphere prevents students from using physical assessment skills in clinics. Ward culture is a fundamental factor underlying the widespread performance of skills because it encompasses employees' values, judgments, beliefs, and attitudes, creating a collective consciousness (Kantek, 2014). Dougles et al. (2015) also found that nursing students perceived ward culture as an obstacle preventing them from using physical assessment skills. Individual, professional, and institutional factors adversely affect the everyday use of physical assessment skills (Cicolini et al., 2015; Douglas et al., 2014; Rylance et al., 2012). Besides, universities in Turkey have just recently started to offer separate courses on physical assessment methods. Therefore, institutional culture has not yet been developed to allow students to learn those skills and utilize them in clinical settings.

Nurses and students had a BNUPAS "lack of influence on patient care" score of 3.77±0.79 and 3.96±0.75, respectively (Table 4). According to this result, nurses and students do not perform physical assessments effectively because they do not think they affect care. It is also noteworthy that students had higher "lack of influence on patient care" scores than nurses, suggesting that the fundamental nursing courses in undergraduate curricula do not attach much attention to physical assessment skills. Alamri et al. (2018) also argue that nursing students who think that performing physical assessment skills has no impact on care are less likely to utilize those skills. It should also be kept in mind that physical assessment courses are either elective courses or are not even offered by universities that do not have the necessary lab equipment and materials. Therefore, nursing students should be encouraged to use physical assessment skills in clinics.

Nurses and students had a BNUPAS "lack of time and interruptions" score of 3.30±0.69 and 3.36±0.65, respectively (Table 4). According to this result, neither nurses nor students use physical assessment methods effectively because they do not have time and have to deal with interruptions. It is no surprise that nurses perceive the lack of time as a barrier to physical assessment because they already state that they cannot perform most interventions because they already have too much work to do. Doğdu et al. (2021) determined that the lack of time was one of the barriers preventing nursing students from using physical assessment skills. Dougles et al. (2015) also reported that nursing students perceived "lack of time and interruptions" as a barrier to physical assessment. Research in general shows that nurses have difficulty performing physical assessment effectively due to excessive workload and too little time (Birks et al., 201; Çalışkan et al., 2020; Fennessey & Wittmann- Price, 2011; Shi et al., 2020).

Nurses and students had a BNUPAS "specialty area" score of 3.03±0.66 and 2.86±0.71, respectively (Table 4). This result suggests that nurses prefer to use physical assessment methods according to their line of service and specialty area. According to Shi et al. (2020), lack of training is a barrier to physical assessment. Dougles et al. (2015) argue that nursing students avoid using physical assessment skills because they lack the opportunity to develop and use them during their undergraduate years. In other words, students have a hard time putting theory into practice (Burbach & Thompson, 2014).

Nurses and students had a BNUPAS "lack of confidence" score of 2.69±0.60 and 2.81±0.57, respectively (Table 4). This result indicates that neither nurses nor students feel confident about performing physical assessments. Research also shows that nurses (Zambas et al., 2016; Shi et al., 2020) and nursing students (Alamri et al., 2018; Dougles et al., 2015) avoid performing physical assessments because they feel unconfident. Nurses and nursing students should have enough self-confidence to utilize physical assessment skills. Therefore, instructors should be role models for students who do clinical clerkships and encourage them to put physical assessment skills into practice.

Nurses and students had the lowest BNUPAS score on the "reliance on others and technology" subscale (Table 4). This result shows that some nurses and students use electronic devices instead of performing physical assessments. Liyew et al. (2021) found that the reliance on

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others and technology was one of the barriers preventing intensive care unit (ICU) nurses from executing physical assessment skills. Dougles et al. (2015) reported that nursing students had a below-average mean "reliance on others and technology" subscale score. Nurses who use technological devices for physical assessment are less likely to utilize their physical assessment skills. Therefore, relying too much on technological devices has the potential to distance nurses from their patients (Dougles et al., 2014).

The most significant barriers to physical assessment skills were the "lack of influence on patient care," "lack of time and interruptions," and "specialty area" (Table 4). According to Liyew et al. (2021), the "specialty area" is a barrier preventing ICU nurses from using physical assessment skills. Physical assessment skills are an essential component of nursing care, but there are barriers to their use. Those barriers prevent nurses and nursing students from performing physical assessments in clinics. Therefore, educational processes and settings should be improved to help nursing students develop physical assessment skills and bridge the gap between theory and practice, starting from their undergraduate years. Reducing nurses' workload and providing them with in-service training can improve their autonomy and professionalism, resulting in quality care and trust in nurse-patient relationships.

Strengths and limitations

The study had one limitation. The results cannot be generalized because they are specific to nurses from a university hospital and nursing students from a university. The study design was cross-sectional, and therefore, it cannot establish cause and effect relationships. Since this was a quantitative study, it may not explore all associated factors, and it is advisable to use both quantitative and qualitative methods.

Conclusion and Recommendations

This study investigated the barriers preventing nurses and nursing students from utilizing physical assessment skills. The results indicate that both nurses and nursing students know most of the physical assessment skills but "always" use only a few of them. They avoid utilizing physical assessment skills because they have too much work to do, must cope with interruptions, stick to skills fitting their specialty, or believe that those skills have no impact on care. We should integrate physical assessment skills into nursing curricula, provide nurses with in-service training, and promote a ward culture that encourages them to use physical assessment skills systematically. Educators should improve the nursing curricula to address physical assessment skills and provide nursing students with the opportunity to put their physical assessment skills into practice in laboratories and real-life clinical settings. Hospital administrators should offer nurses in-service training to help them improve their physical assessment skills and integrate them into care. Researchers should conduct qualitative research to better understand complex problems, experiences, and emotions in clinical settings.

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