

Barriers of physical assessment skills among nursing students in Arab Peninsula

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ABSTRACT

Objective: There is a growing demand for health-care nursing services in several health care institutions. Understanding barriers to physical assessment among nursing students create a more detailed assessment in the development of quality patient's care in nursing practice. This study examined the barriers to physical assessment skills among nursing students in a government university in Arab Peninsula.

Methods: A cross-sectional research survey design of 206 nursing students using a standardized questionnaire was used. The questionnaire is composed of 7 subscales in evaluating the barriers to physical assessment skills between the classroom and clinical setting. Independent Samples *t*-test was used in comparing the gender mean of the nursing students about the barriers to physical assessment. Paired *t*-test was also used in determining the differences between perceived barriers to physical assessment in the classroom and clinical setting.

Results: Subscale "reliance on others and technology," ward culture, "lack of influence on patient care" have significant differences between perceived barriers in physical assessment among classroom settings and clinical setting.

Conclusion: Although nursing students were oriented and educated about physical assessment in the nursing curriculum, this is not often practiced in clinical settings. The point that is if nursing students are incorrectly performing the patient assessment, then no amount of critical thinking could lead to better clinical decisions. Continuous exposure and enhancing the quality of planning and promotion of the nursing students could develop necessary skills. In addition, increasing self-confidence is vital to assess the patient's health status effectively and minimize the barriers to performing the physical assessment.

Keywords: Clinical skills, health care institution, nursing competency, nursing education, nursing practice

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Introduction

Physical assessment is an integral part of the nursing field during the past 20th century.^[1] It contains competency level that nursing students gained knowledge and skills from academic institution to the clinical settings which are an essential part of patient's quality care. In addition, this competency in physical assessment was oriented in classroom setting as it emphasized development skills in clinical settings.^[2] However, due to the technological health systems in today's time, these skills demand continuous improvement which is needed for future health professionals. Furthermore, with the application of nursing core competency in standard education among nursing undergraduates, there will be a support of the needs of skilled future nurses.^[3]

Previous study over the past decade reported that nursing graduates did not meet minimum competency expectations from their work.^[4] Concurrently, one study pointed out a disparity

between classroom teaching and working in clinical settings.^[5] Even though the physical assessment is a basic course in nursing education, there are still reported barriers in performing physical assessment both in the classroom settings and clinical settings even in a complete health-care facility among high-resource countries.^[6] Meanwhile in Saudi Arabia, as one of the high-income countries, there are a growing demand for health-care services in several health care institution.^[7] Most health care institution expects new nursing graduates readily prepared in performing broader clinical skills for patient care.^[8]

However, there is a shortage of qualified Saudi nurses in the region due to the poor quality standard in nursing education.^[9] The effect of this poor quality standard could lead to a deficit in performing physical assessment among Saudi nurses in the clinical settings.^[10] This implies a gap between the concept of physical assessment and to its practice in clinical exposure.

This is very alarming since nurses are primarily responsible for patient's care, yet cannot competently perform basic assessment tasks.^[11] The incompetence could lead to a lack of optimum patient care in performing health assessment.^[12]

Several studies suggest time interruption,^[13] lack of confidence in head-to-toe assessment, lack of support and acceptance from other health care workers,^[14] lack of equipment and the non-availability of qualified nursing faculty,^[15] and reliance on technology of new graduates,^[16] were reported barriers in conducting health assessment which affects the nurses' performance in clinical settings. Some clinical instructors impart fewer physical assessment skills due to the saturated nursing curriculum.^[17] Furthermore, several nursing students change their careers as a result of the challenges they encountered in the clinical setting.^[18] But though for those reasons, still few studies examined the challenges encountered among nurses in performing physical assessment,^[17,18] and even fewer among nursing students.

Failure in identifying the challenges and problems that students encountered during physical assessment both in the classroom and clinical learning environment prevents them from providing patient's quality care. Thus, nursing education institution constantly striving competency-based curricula in preparation for future qualified nurses, but still, limited studies shown on the barriers of physical assessment skills learned during their bachelor degree and clinical exposure especially in the universities in Kingdom of Saudi Arabia.

Thus, there is a need to have a detailed analysis of the challenges encountered by the nursing students in performing the physical assessment which is, therefore, the basis of this research. This study provides valuable information about barriers to physical assessment both in classroom settings and clinical settings. Physical assessment is a nursing competency-based taught in universities which is one of the key elements in nursing education and clinical practice for health professionals.^[19] Through, understanding the barriers to physical assessment among nursing students a creation of a more detailed assessment in the development of quality patient's care when they work in the clinical setting will be realized.

Methods

Design

A cross-sectional study research design was used in this investigation.

Participants and settings

This study involved a total of 206 nursing students enrolled during the 1st and 2nd semesters during the academic year 2016–2017 in the College of Applied Medical Sciences, Majmaah University, Riyadh, and Kingdom of Saudi Arabia. The inclusion criteria used were (1) male and female,

(2) nursing students taking physical assessment theory and practical subject, (3) students with clinical duties, and (4) 2nd year, 3rd year, and 4th year nursing students, and (5) voluntarily consented in participating the study. Exclusion criteria: (1) 1st year nursing students (since no subject and exposure to the physical assessment subject).

Instrumentation

This study used self-administered questionnaire which determined the barriers to physical assessment skills among nursing students in Nursing Department, College of Applied Medical Sciences Majmaah University. The questionnaire comprised two parts. The first part discussed the demographic profile of the nursing students including their age group, academic class level/ranking, grade in physical assessment (theory and practical average), and type of admission.

The second part contains perceived barriers to physical assessment statements.^[20] Participants answered the extent to which they agreed in each statement applied to their practice on a 5-point Likert-type scale from 1 = strongly disagree, 5 = strongly agree. This contains seven subscales with a total of 38 items statements, and reliability coefficients such as: Reliance on others and technology (0.83), lack of time and interruptions (0.83), ward culture (0.83), lack of confidence (0.83), lack of nursing role models (0.83), lack of influence on patient care (0.83), and specialty area (0.83). The scale content validity index was 0.92, and the coefficient alpha for the total 38-item scale was 0.80, respectively.^[21]

Data gathering procedure

A self-administered questionnaire which was written in both English and Arabic was used in data gathering. The validity of the instrument was assessed by group of native Arabic language experts in the field. Implementing forward translations and backward translations were achieved during this conceptual translation of barriers to physical assessment. The Arabic questionnaire was pilot tested indifferent universities offering nursing program. The corrections and easiness of words were made accordingly. The reliability of the instrument after the pilot test was achieved through Cronbach's alpha (0.81).

On approval from the Dean of the College of Applied Sciences, the researchers personally administered the questionnaire with the assistance of the class coordinator to the respondents so as to ensure 100% retrieval. After which, the data were organized, tabulated, computed, analyzed, and interpreted.

Ethical consideration

Researchers sought ethical clearance from the Internal Ethics Board of the College of Applied Medical Sciences, Majmaah University. An explanation of the purpose of the study was given, emphasizing a voluntary participation without undue pressure before the respondents' signature. The anonymity

of individuals was observed using only code numbers in the questionnaire and to provide privacy and confidentiality from the responses of each respondent.

Data analysis

Descriptive statistics were used in describing the sociodemographic profile of the nursing students. Frequency and percentages were used in presenting the demographic profile and responses from each item statements in the barriers of physical assessment scale. Moreover, the Independent Samples *t*-test compares the gender mean of the nursing students to the barriers of physical assessment.

Next, the median frequency for each subscale in physical assessment barriers skills was also used such as group of clinical settings and classroom settings. Finally, the paired *t*-test was used in determining the differences between barriers to physical assessment in classroom settings and hospital setting. *P* = 0.05 level of significance using the two-tailed test was used in this study.

Results

Sociodemographic characteristics of the nursing students

The sociodemographic characteristics of the nursing students were discussed in Table 1. There were 104 male nursing students and 102 female nursing students from the 206 respondents which were an equal representation of both male and female. Moreover, 53 or 50.96% have the age bracket from 20 to 25 years old which is the highest age bracket, while 5 or 4.81% have an age bracket between from 36 to 40 years old.

Meanwhile, there were 69 or 67.6% female nursing students have the age bracket of 20–25 years old, on the other hand, 1 or 0.98% have an age bracket between from 36 to 40 years old. Then, almost half were level 7 nursing students. Meanwhile, half of the male nursing students have a grade in physical assessment between 85% and 89% while 43 or 42.16% of the female nursing respondents have a grade between 85% and 89%. Finally, almost all of the nursing respondents were regular students.

Percentage of nursing students respondents that agreed with each subscale item (*n* = 206). Table 2 summarized the percentage of nursing students who either agreed or strongly agreed with each item in the seven subscales of barrier in physical assessment skill. “Strongly agree” or “agree” responses described the physical assessment barriers skill in the classroom and clinical settings

As revealed, half or more than half of the respondents agreed that the classroom settings statements “physical assessment is used only when a patient deteriorates” “no time to use

Table 1: Sociodemographic profile of the nursing students-respondents (*n*=206)

| Respondent's profile | Male=104 (%) | Female=102 (%) | Total |
|---|--------------|----------------|-------|
| Age group | | | |
| 20–25 | 53 (50.96) | 69 (67.6) | 122 |
| 26–30 | 39 (37.50) | 10 (9.80) | 49 |
| 31–35 | 7 (6.73) | 22 (21.57) | 29 |
| 36–40 | 5 (4.81) | 1 (0.98) | 6 |
| Mean±SD | 24.80±4.91 | 24.32±5.27 | |
| Academic class level/ ranking | | | |
| Level 6 | 32 (30.77) | 38 (37.25) | 70 |
| Level 7 | 44 (42.31) | 49 (48.04) | 93 |
| Level 8 | 28 (26.92) | 15 (14.71) | 43 |
| Grade in physical assessment (theory and practical average) | | | |
| 90–94% (A) | 12 (11.54) | 19 (18.63) | 31 |
| 85–89% (B+) | 53 (50.96) | 43 (42.16) | 96 |
| 80–84% (B) | 39 (37.50) | 40 (39.22) | 79 |
| Type of admission | | | |
| Regular | 82 (78.85) | 92 (90.20) | 174 |
| Bridging | 22 (21.15) | 10 (9.8) | 32 |

SD: Standard deviation

physical assessment skills due to the workload,” and “too many interruptions during work prevent from doing physical assessment” were barriers in performing physical assessment in classroom settings.

Moreover, statements like “the ward culture discourages nurses from doing the physical assessment in my workplace classroom,” “lack confidence in accurately performing physical assessment skills,” “Worrying about the ability to correctly use physical assessment skills,” “lack confidence in deciding what physical assessment skills to use,” “information using physical assessment skills is used to develop a plan of care,” “Ability to use physical assessment skills makes a positive difference to patient care,” “Ability to use physical assessment skills improves the quality of nursing care,” and “The information collected using physical assessment skills is used to make treatment decisions” were the barriers in performing physical assessment both in the classroom setting and clinical settings.

Differences between genders on the barriers in physical assessment

Along the subscale “reliance on others and technology,” the females nursing students recorded higher barriers in physical assessment than males (*P* = 0.691, two-tailed) and no significant difference was observed both in the classroom and clinical setting [Table 3].

Table 2: Percentage of nursing-students respondents that agreed with each subscale item (n=206)

| Subscale | Learning setting | Strongly agree/agree |
|---|------------------|----------------------|
| | | Frequency (%) |
| Subscale 1: Reliance on others and technology | | |
| It's not the nurse's role to conduct a physical assessment of the patient | Classroom | 67 (32.52) |
| | Clinical | 53 (25.73) |
| Gather all the physical assessment data using electronic monitoring devices | Classroom | 77 (37.38) |
| | Clinical | 66 (32.04) |
| Use of technology reduces the need for nurses' physical assessment skills | Classroom | 82 (39.81) |
| | Clinical | 75 (46.41) |
| Nurses don't need to use many physical assessment skills to do their job well | Classroom | 77 (37.38) |
| | Clinical | 74 (35.92) |
| Physical assessment is something only the doctor does | Classroom | 82 (39.81) |
| | Clinical | 88 (42.72) |
| Relying on monitoring equipment to collect assessment data | Classroom | 82 (39.81) |
| | Clinical | 80 (38.83) |
| Physical assessment is used only when a patient deteriorates | Classroom | 105 (50.97) |
| | Clinical | 96 (46.60) |
| Physical assessment is the responsibility of medical or allied health staff | Classroom | 93 (45.15) |
| | Clinical | 85 (41.46) |
| Don't use physical assessment skills because of the task-oriented nature of the work | Classroom | 82 (39.81) |
| | Clinical | 78 (37.86) |
| Subscale 2: Lack of time and interruptions | | |
| Lack of time is a barrier in using physical assessment skills | Classroom | 93 (45.15) |
| | Clinical | 73 (35.44) |
| Lack of time to do an in-depth physical assessment to the patients | Classroom | 82 (39.81) |
| | Clinical | 74 (35.92) |
| No time to use physical assessment skills because of the workload | Classroom | 103 (50.00) |
| | Clinical | 87 (42.23) |
| Completing checklists and documentation means no time to use physical assessment skills | Classroom | 93 (45.15) |
| | Clinical | 84 (40.78) |
| Too many interruptions during work prevent from doing physical assessment | Classroom | 123 (59.71) |
| | Clinical | 106 (51.46) |
| Subscale 3: Ward culture | | |
| The ward culture is a barrier in using of physical assessment skills | Classroom | 72 (34.95) |
| | Clinical | 64 (31.07) |
| Assessment is done a certain way in the ward which limits the extent of physical assessment | Classroom | 83 (40.29) |
| | Clinical | 75 (36.41) |
| Assessments I make using physical assessment skills are not valued by my coworkers | Classroom | 98 (47.57) |
| | Clinical | 76 (36.89) |
| The ward culture discourages nurses from doing physical assessment in my workplace | Classroom | 152 (73.79) |
| | Clinical | 133 (64.56) |
| Feel of support by the colleagues to use physical assessment skills | Classroom | 68 (33.01) |
| | Clinical | 49 (23.79) |
| Subscale 4: Lack of confidence | | |
| Lack confidence in accurately performing physical assessment skills | Classroom | 136 (66.02) |
| | Clinical | 124 (60.19) |
| Worrying about the ability to correctly use physical assessment skills | Classroom | 154 (74.76) |

(Contd...)

Table 2: (Continued)

| Subscale | Learning setting | Strongly agree/agree |
|---|------------------|----------------------|
| | | Frequency (%) |
| Lack confidence in deciding what physical assessment skills to use | Clinical | 78 (37.86) |
| | Classroom | 163 (79.13) |
| Competently use physical assessment skills | Clinical | 76 (36.89) |
| | Classroom | 69 (33.50) |
| Subscale 5: Lack of nursing role models | Clinical | 78 (37.86) |
| | Classroom | 139 (67.48) |
| Physical assessment skills are role modeled by experienced nurses in the ward | Clinical | 124 (60.19) |
| | Classroom | 85 (41.26) |
| Nurse leaders promote the use of physical assessment skills in the unit | Clinical | 59 (28.64) |
| | Classroom | 89 (43.20) |
| Nurses encourage each other to use physical assessment skills in the ward | Clinical | 84 (40.78) |
| | Classroom | 96 (46.60) |
| There is a lack of experienced nursing staff to role model physical assessment skills in the ward | Clinical | 83 (40.29) |
| | Classroom | 156 (75.73) |
| Subscale 6: Lack of influence on patient care | Clinical | 105 (10.97) |
| | Classroom | 106 (51.46) |
| Information using physical assessment skills is used to develop a plan of care | Clinical | 102 (49.51) |
| | Classroom | 143 (69.42) |
| Ability to use physical assessment skills makes a positive difference to patient care | Clinical | 106 (51.46) |
| | Classroom | 106 (51.46) |
| Ability to use physical assessment skills improves the quality of nursing care | Clinical | 106 (51.46) |
| | Classroom | 92 (44.66) |
| The information collected using physical assessment skills is used to make treatment decisions | Clinical | 80 (38.83) |
| | Classroom | 74 (35.92) |
| Subscale 7: Specialty area | Clinical | 82 (39.81) |
| | Classroom | 74 (35.92) |
| Physical assessment skills are relevant to nurses in specialty area | Clinical | 74 (35.92) |
| | Classroom | 94 (45.63) |
| Don't use physical assessment skills that are outside of the specialty area | Clinical | 86 (41.75) |
| | Classroom | 69 (33.53) |
| The specialty area determines the physical assessment skills that nurses used | Clinical | 65 (31.55) |
| | Classroom | 62 (30.10) |
| The physical assessment skills are restricted only specialty area | Clinical | 62 (30.10) |
| | Classroom | 86 (41.75) |

Meanwhile, subscales “lack of time and interruptions,” “ward culture,” “lack of confidence,” “lack of nursing role models,” and “lack of influence on patient care” were noted higher barriers in physical assessment by the males nursing students than females, however, no significant difference was observed both in the classroom and clinical settings.

Difference on barriers in physical assessment in different learning settings

As discussed in the Table 4, the statistical differences between perceived barriers in physical assessment between classroom settings and clinical setting. Subscale “reliance on others and

technology” ($P < 0.05$ (2 tailed), “ward culture” ($P < 0.05$, 2 tailed), lack of influence on patient care ($P < 0.05$, 2 tailed) have significant differences between perceived barriers in physical assessment in classroom settings and clinical setting.

Discussion

This study focused on nursing student’s response and recognition on barriers of physical assessment skills between the classroom settings and clinical settings. An underpinning knowledge and skills in physical assessment taught in the classroom are required to have accurate physical assessment

Table 3: Differences between genders on the barriers of physical assessment (n=206)

| Subscale | Learning settings | Male mean (n=104) | Female mean (n=102) | t | P |
|-----------------------------------|-------------------|-------------------|---------------------|--------|--------|
| Reliance on others and technology | Classroom | 3.36 | 3.40 | -0.41 | 0.691 |
| | Clinical | 3.11 | 3.18 | -2.39 | 0.044* |
| Lack of time and interruptions | Classroom | 3.28 | 3.25 | 0.497 | 0.640 |
| | Clinical | 3.16 | 3.18 | -0.291 | 0.782 |
| Ward culture | Classroom | 3.42 | 3.25 | 3.44 | 0.026* |
| | Clinical | 3.19 | 3.08 | 3.07 | 0.040* |
| Lack of confidence | Classroom | 3.23 | 3.12 | 1.64 | 0.199 |
| | Clinical | 3.17 | 3.04 | 2.12 | 0.124 |
| Lack of nursing role models | Classroom | 3.42 | 3.35 | 1.54 | 0.22 |
| | Clinical | 3.23 | 3.15 | 1.90 | 0.154 |
| Lack of influence on patient care | Classroom | 3.43 | 3.38 | 1.18 | 0.240 |
| | Clinical | 3.27 | 3.07 | 1.78 | 0.149 |

*Significant at P<0.05 (2 tailed)

Table 4: Difference on barriers in physical assessment skills in different learning settings (n=206)

| Subscale | Learning settings | | Mean difference | t | P |
|-----------------------------------|-------------------|---------------|-----------------|-------|---------|
| | Classroom mean | Clinical mean | | | |
| Reliance on others and technology | 3.38 | 3.15 | -0.23 | 3.91 | <0.004* |
| Lack of time and interruptions | 3.27 | 3.17 | -0.10 | 2.83 | 0.022 |
| Ward culture | 3.33 | 3.14 | -0.19 | 10.79 | <0.000* |
| Lack of confidence | 3.18 | 3.11 | -0.07 | 2.96 | 0.018 |
| Lack of nursing role models | 3.39 | 3.19 | -0.20 | 4.09 | 0.026 |
| Lack of influence on patient care | 3.41 | 3.17 | -0.24 | 5.96 | <0.004* |

*Significant at P<0.05 (2 tailed)

documentation and recognition of patient health situation in clinical settings.

Findings in this study revealed that more than half of the nursing students reported that lack of time and interruptions, lack of confidence, lack of influence on patient care are perceived barriers to physical assessment. As described earlier lack of confidence was shown as one of the barriers in physical assessment. This is worth noting even though physical assessment was discussed, and demonstrated in the classroom; there were still fears among nursing students that they cannot assess patient’s status, especially during an emergency situation.^[22] Although they had constant exposure from simulated patient’s practice of physical examination skills in the classroom settings, there still doubt about the skills in real life scenario.^[23] As nursing students experienced that simulation is entirely different from the actual situation where fear of making mistakes could cause as anxiety-producing situations in their clinical experience.^[23] This could disrupt their work performance in assessment, leading to physical inadequacies, and increase diagnostic errors. It is clear that lack of confidence in physical assessment competencies contributed to the deficiency in critical care. Realizing that good physical exam skills take years to develop and do not happen overnight, any encounter with a patient might increase anxiety levels.

Conversely, this lack of confidence can be avoided which is caused mostly by failure to perform the relevant examination.^[24] Creating a supportive clinical environment and good effective communication play a significant role in building self-confidence.^[25] Thus, further studies could be conducted to address the gap between factors affecting confidence in performing physical assessment among nursing students in the clinical settings. Moreover, lack of time and interruptions was also shown as one of the barriers to physical assessment. Previous studies have shown that nursing faculty teaches fewer physical assessment skills due to too heavy lecture time in the classroom.^[17] This may be due to the inaction of updating physical assessment information and teaching strategies among nursing students.

Meanwhile, in a hospital setting, interruptions while performing physical assessment could delay recognition in the current health status.^[26] Interruption is high once the primary work task is postponed so as to give full consideration to the other activities.^[26] Interruptions are not only common in performing physical assessment but also during drug medication, and nurse’s notes.^[26] Another study reported that one staff nurse was interrupted more than 20 times during the 8 h shift.^[27] The effect of this interruption in the clinical setting could compromise critical thinking and delivery of care,^[28] and potentially result from more assessment errors.^[26] Furthermore,

the previous study reported negative consequences is a result from the interruptions, such as postponement of care and loss of concentration.^[22]

However, most of the interruptions are preventable, and not all the time that it has an adverse effect.^[26] Some interruptions were important in the delivery of patient's care and allowed in the transmission of an important source of information.^[26] Frequent interruption is sometimes good in cognitive functioning emphasizing the clinical rationale. However, in this study, it focused on nursing students and not the staff nurses in the hospital. Thus, further empirical data are needed to explore the effect of interruption in performing the physical assessment in clinical settings among nursing students.

In addition, lack of influence on patient's care was also described as barriers to physical assessment. Based on the results, it could be claimed that physical assessment skills bridged the gap between education and practice when it comes to lack of influence on patient's care. The point that nursing students do not have the chance in practicing real-life assessment skills from their education to the clinical settings, this will help in explicating the lack of application of patient's care toward nursing practice. To be skillful, a need for continuous practice of core physical assessment in detecting the clinical condition of patient's status is important and eventually minimize the risk of lack of influence on patient care.^[20]

Lack of influence on physical assessment inpatient's care could reflect on the health status deterioration.^[29] Hence, the influence of patient creates awareness in very indirect changes in the patient's status.^[30] Again this study focused on nursing students and not the staff nurses in the hospital. Thus, further empirical data are more needed to explore the effect of lack of influence of physical assessment in patient's care clinical settings among nursing students.

Another result of this study found out that there is no significant difference between male nursing students and female nursing students as to their perceived barriers to physical assessment. This implies that gender differences do not affect assessment knowledge and skills performance whether in the classroom or clinical settings. However, the previous study pointed that female students have better nursing performance and experience in the lower physical assessment barriers.^[31] Female outperform males in physical assessment accuracy.^[32] Furthermore, the differences were found in the gender-specific physical assessment, for instance, female students perform better when it comes to breast and pelvic examinations, while testicular examination successfully accomplished by males.^[33] Interestingly, teenage female students have higher manual control abilities in conducting physical assessment task than the males.^[33] This means that there were specific gender-related specific physical assessment qualities. Nonetheless, still, there are limited empirical data were conducted about barriers to physical assessment among its gender in the clinical settings

and classroom settings. Thus, further research is needed to explore about gender differences in their physical examination skills performances, not only focusing on its barriers, but also can be generalized to other classroom and clinical settings.

This study also showed significant differences between barriers in physical assessment and reliance on others and technology. This is consistent with the previous study that nurses relied too much on technologies and equipment which affects the holistic patient assessment that hinders the identification of patient outcome.^[33] Specifically, the results of the study reported significantly higher reliance on technology in the classroom setting compared to practical experience in clinical setting. This implies that some nursing schools were technologically complete in equipment compared to the public hospital which they are exposed. The fact that the existing hospital equipment facilities have not changed, and some of the medical equipment are unavailable. Nevertheless, whether in classroom settings or clinical settings, technology is now very much part of nursing health assessment. As it can bring precise, available, and actionable health information during an assessment.^[34] Advances in technology make it conveniently possible for nurses to constantly monitor the health status of the patients.^[34]

Meanwhile, nurses should always consider that it is not advisable on relying too much on hospital equipment. For instance inaccuracy of reading for the anemic patients and those with fluid depletion, and that the machine does not distinguish between oxyhemoglobin and carboxyhemoglobin.^[35] This concern implies that nurses could become too reliant on using technology in carrying out an assessment which limits the covert sign. This could affect the health status of the patient. Staff nurses often feel insecure during assessment whenever there is no help of technology to validate their findings. This feeling of insecurity could pose a barrier to physical assessment practices. As physical assessment focus more than the overt signs of patient's health reliance on technology which may create diverting attention away from holistic patient assessment and would lead to undetected signs of change in health status.^[36] Thus, possibly preventing patients to detect deteriorating health condition.

Through the increasing reliance on technology and the proliferation of portable health mobile devices in the health care, challenges on barriers to physical assessment could continue to persist. Therefore, future nurses must be ready for how technologies could change the nursing physical assessment practices and proactively create the development programs during classroom practice. Through reassuring that future nurses would have clinical skills they need to address and minimize relying too much on technologies. Nurses should be the vanguard in preparation for these challenges.

Another finding of this study was found out that ward culture has significant differences between perceived barriers in physical assessment both classroom settings and clinical

setting. It could be manifested on the uncooperative ward culture which could hamper the professional development of nursing practice.^[37] Future nurses should have basic physical assessment skills learned from the classroom which serves as a foundation in doing the expected skills within each ward area.^[38] A new development program in nursing assessment that ensures a proactive and patient safety approach are needed to prevent the barriers in conducting a physical assessment from the classroom to clinical settings.

Finally, the lack of influence on patient's care has significant differences between perceived barriers in physical assessment both classroom and clinical settings. Nursing students' behaviors and performances change in the clinical setting.^[39] The difference between the classroom physical environment and opportunity to care for real patients could affect their learning performance toward patient care. Unlike classroom settings, clinical exposure occurs in a complex clinical learning environment.^[37] Previous study suggests that continuous practice of physical assessment before entering the clinical settings is an important quality of clinical education.^[40] Although continuous exposure from classroom settings to clinical settings improved patient care and helped improve in to become a good nursing professional, there still limited evidence especially among Arab nursing students. Thus, it raises concern and issues about classroom education and clinical setting practice regarding the use of physical assessment. Thus, more empirical data could be conducted regarding barriers to physical assessment in rendering patient's care over nursing practice.

Limitation

This study was conducted during School year 2016–2017, at a particular point in time which could limit the generalize ability of the result. Moreover, the study is confined to nursing department operating in College of Applied Medical Sciences, Majmaah University. The researchers depend on a self-administered questionnaire, which is vulnerable to bias recall. This study also used convenience sampling that gives inability in generalizing the results. A comparative study between private and public nursing colleges can be undertaken in future. In addition, focusing on nursing students is the limitations of the study. Future empirical data could be searched like those affecting physical assessment skills performance of staff nurses working in the hospital since they are the long-standing determinates of quality service rendered to patients admitted to hospitals. Since, the study only focus on the 5 subscales from the adapted questionnaire, local issues such as dress codes for female Saudi nurses, religious and social factors, fear of getting infected, language barrier, behaviors, emotions, and feelings, cultural phenomena, and nurses' experiences in the ward cannot be explored by quantitative study. Thus, qualitative research contributed to the understanding of the complex local issues, experiences, feelings, and emotion in clinical settings.

However, the response rate from the respondents is very high which serves as a strength of the study. Further research could cover other subscales of barriers to physical health assessment and the wider region. Interestingly, this study adds to the existing body of knowledge about the physical assessment barriers among nursing students. Most notably, these findings contributed to the limited literature about the barriers in physical assessment for providing theoretical underpinnings and international viewpoint in the Arab peninsula.

Conclusion

Although nursing students were oriented and educated about physical assessment as an essential part of the nursing curriculum, not often practiced in clinical settings. Reliance on others and technology, ward culture, lack of influence on patient care are barriers in performing a physical assessment.

Continuous exposure, and enhance the quality of planning and promotion of the nursing students could develop necessary skills and increase self-confidence to assess the patient's health status effectively during the physical assessment.^[40] This study also highlights the shift of focus from perceived barriers in physical assessment skills which served as the basis for curriculum restructuring. Thus, implementing approaches could be of great help which could reduce the barriers and improve nursing assessment. In addition, reinforcing quality teaching and nursing skills are necessary to perform a comprehensive health assessment utilizing the core competencies and avoid relying too much on technology. Since the ward takes into account the patient's need, future nurses should have a constant review on basic physical assessment to improve patients' experience of health care. Finally, future research studies could be developed particularly interventional studies to minimize barriers in performing physical assessment both in the classroom and clinical settings.

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