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**Physical Assessment Skills among Nursing Students and
Interns: A Gap between what is Taught and what is
Practiced**

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Abstract

Physical assessment of the patient's health status is one of the core competencies of practicing nurse. There have been growing concerns about the adequacy of the educational preparation of nursing graduates due to limited relevance of the currently taught health assessment skills to actual clinical practice. The objective of the current study was to estimate the frequency of physical assessment skills actually practiced in clinical setting and to determine reasons for under-practicing. A cross-sectional survey study was conducted during academic year 2014-2105 among senior nursing students and intern nurses. The frequency of practicing 159 basic health assessment skills were evaluated. A total of 136 participants completed the study questionnaire (82 students and 54 interns). They were all Saudi females with mean age of 22.45 ± 1.57 years. Among the 159 health assessment skills evaluated, on average 42.8% were practiced (16.3% on a daily basis, 5.1% on a weekly basis, 21.4% occasionally) while 57.2% were never practiced. The most frequent reported reasons for not-practicing taught skills included; lack of time (46.3%), being done according to patient's condition (36.8%), being done for admitted patients only (27.9%), cultural constraints (24.3%), forgot how to do (21.3%). The study is reporting a significant under-practicing of physical assessment skills among a group of senior nursing students and intern nurses who have been recently taught these skills. The current findings may help educational and nursing experts to improve the effectiveness of undergraduate nursing programs, by better characterizing the under-practicing problem and the reasons behind it.

Keywords: Health assessment, Skills, Nursing students, Barriers, Saudi Arabia

Introduction

Nursing role has undergone major changes during the second half of the 20th century to meet the emerging, dynamic, and complex healthcare requirements (Price et al. 2000, Milligan and Neville 2001). This comprised expansion of the tasks and skills that were traditionally considered as an absolute physician role (Milligan and Neville 2001, Wheeldon 2005). Physical assessment skills are fundamental nursing competencies for conducting comprehensive health assessment within a holistic health model (Fennessey and Wittmann-Price 2011, Lesa and Dixon 2007). In several Western countries, physical assessment skills have been readily incorporated into routine nursing practice (Lesa and Dixon 2007). This facilitates earlier recognition of patients at risk of clinical deterioration, especially in the setting of limited physician availability (Wheeldon 2005). It can also enhance the nurse's self-confidence and improve the patient's outcome (Coombs and Moore 2002). However, failure to appreciate clinical urgency, partly caused by inadequate performance or interpretation of physical assessment skills, may result in a suboptimal care of acutely-ill ward patients (Massey et al. 2008). Additionally, this may increase work-related stress and legal accountability among nurses (Price et al. 2000, Wheeldon 2005).

Developing competent physical assessment skills among nurses requires effective undergraduate nursing education programs that provide essential knowledge and skills for future practice (Tanner 2010). Health assessment course is a core course for undergraduate nursing education that prepares future nurses to perform holistic, comprehensive assessment for their patients (Schare et al. 1988, American Association of Colleges of Nursing 1998). However, there have been growing concerns about the adequacy of the educational preparation of nursing graduates due to limited relevance of the currently taught health assessment skills to actual clinical practice. For example, only one-fourth to one-third of the physical assessment skills taught in undergraduate courses were found to be routinely practiced in clinical setting (Secretst et al. 2005, Giddens 2007, Birks et al. 2013, Anderson et al. 2014). This discrepancy has initiated a debate about the content, integration, and effectiveness of the current undergraduate nursing curricula for physical examination skills (Giddens and Eddy 2009). Moreover, the underlying causes of such underutilization of the taught physical assessment skills are still not sufficiently studied (Douglas et al. 2014).

In Saudi Arabia, there is a chronic shortage of Saudi healthcare professionals, specially qualified nurses (Almalki et al. 2011, Aldossary et al. 2008). The Kingdom responded to this nursing shortage by expanding free nursing educational programs across the country to meet the needs of the growing Saudi population (Aboshaiqah 2016). However, there is lack of local data describing the clinical utilization of physical assessment skills taught in these nursing programs. The objective of the current study was to estimate the frequency of physical assessment skills actually practiced in clinical setting. Additionally, to determine self-reported reasons for not practicing some of the physical assessment skills taught.

Methods

Setting

The current study was done among nursing students enrolled at the College of Nursing (CON) at the King Saud Bin Abdelaziz University for health science (KSAU-HS) in Riyadh and intern nurses at King Abdulaziz Medical City in Riyadh (KAMC-R) in Riyadh. The nursing program at KSAU-HS is a leading program in Saudi Arabia established in 2005 as the first public University specialized in health sciences in Saudi Arabia. The program offers a Bachelor of Science degree in Nursing (BSN) which consists of 136 credits (including 88 academic credits and 48 laboratory credits), distributed in 43 courses taken in 8 levels (semesters) or four years. A total 165 undergraduate students are currently enrolled in CON in Riyadh, with an average 71 students are graduated every year. CON in Riyadh is served by a total 15 full-time professors and 35 academic/teaching staff. The program graduates receive their internship at the KAMC-R which is approximately 1000-bed tertiary care facility. KAMC-R provides primary to tertiary care for 750,000 Saudi National Guard soldiers, employees and their families. Approximately 9170 HCWs are working for KAMC-R in jobs that involve direct patient care; including approximately 1,670 physicians, 4,660 nurses, and 2,840 other HCWs.

Study Design

The current study is a cross-sectional survey study that was done during academic year 2014-2105 among Saudi nursing students and graduates who have already started to practice the taught health assessment skills (intern nurses). The study received the required ethical approval form the research committee at the KSAU-HS.

Population

All nursing students (levels 6 and 8) who were enrolled in the baccalaureate nursing program in KSAU-HS and nursing interns (phases 1 and 2) who had their internship in KAMC-R during the Fall and Spring 2015 were also included. Level 7 nursing students whose focus was maternity and pediatric nursing were excluded. Consents were obtained from the participants before starting the questionnaire.

Health Assessment Course

It is a 4-credit course (2 academic credits and 2 practical credits) given to undergraduate students enrolled in level 5 of the BSN program. It provides the student with the opportunity to develop skills in physical assessment to be able to evaluate the patient's health status from a holistic perspective. The course is given concomitantly with the adult nursing care course and after finishing pre-

nursing anatomy and physiology courses. The applications of selected principles from previous sciences and nursing courses are incorporated throughout the theory content of the course. Laboratory science experience (nursing skills laboratory) is provided to develop skills necessary to perform comprehensive health assessment to a diverse population.

Assessment Tool

A structured study questionnaire was used to collect data on the frequency (defined as daily, weekly, occasionally and never) of practicing 159 basic health assessment skills grouped by body systems. The skills included were the ones that have been already taught to both groups. These included integumentary system (10 skills), head and neck (11 skills), eyes (20 skills), ear, nose, throat (ENT) and mouth (21 skills), breast (5 skills), respiratory system (17 skills), heart and neck vessels (13 skills), peripheral vascular system (13 skills), abdomen (21 skills), and neuromuscular system (28 skills). Additionally, participants were asked to report the barriers that they believe limit their ability to practice the taught health assessment skills. Face and content validity of the questionnaire were evaluated by two expert colleagues before administration.

Statistical Methods

Data were presented as frequencies and percentages. Overall and system-specific frequency of skill practicing were calculated by dividing the sum of practiced skills with a certain frequency (defined as daily, weekly, occasionally and never) in all participants (i.e. participant-skill responses) by all evaluated skills in these participants. The frequency of individual and system skills practiced on a daily basis or never been practiced were sorted in descending orders. Significant differences in the overall and system-specific frequency of skill practicing between students and interns were tested using chi-square test. All P-values were two-tailed. P-value <0.05 was considered as significant. SPSS software (release 23.0, Armonk, NY: IBM Corp) was used for all statistical analyses.

Results

A total 136 participants completed the study questionnaire (82 students and 54 interns). As shown in Table 1, the participants were all Saudi females and their age was mainly (95.6%) less than 25 years (mean 22.45 SD±1.57). The majority (90.2%) of students were in level 6 while the majority (72.2%) of interns were in phase 2.

Table 1. Demographic Characteristics of the Study Participants (N=136)

	Frequency	Percentage
Gender		
<i>Female</i>	136	100
Age (mean ± standard deviation)	22.45 ± 1.57	
Age groups		
<i>< 25 years</i>	130	95.6
<i>≥ 25 years</i>	6	4.4
Nationality		
<i>Saudi</i>	136	100
Domain of experience		
<i>Student</i>	82	60.3
<i>Internship</i>	54	39.7
Student levels		
<i>Level 6</i>	74	90.2
<i>Level 8</i>	8	9.8
Internship phase		
<i>Phase 1</i>	15	27.8
<i>Phase 2</i>	39	72.2
Semester time		
<i>Fall 2015</i>	53	39.0
<i>Spring 2015</i>	83	61.0

The total responses for the 159 skills assessed among the 136 participants were 21,495 participant-skill responses, which represented 99.4% data completeness. Out of 21,495 participant-skill responses, 3,513 (16.3%) were practiced on a daily basis, 1,090 (5.1%) were practiced on a weekly basis, 4,592 (21.4%) were practiced on an occasional basis, and 12,300 (57.2%) were never been practiced. Therefore, on average 68 out of 159 skills examined (42.8%) were practiced while on average 91 out of 159 skills examined (57.2%) were never practiced.

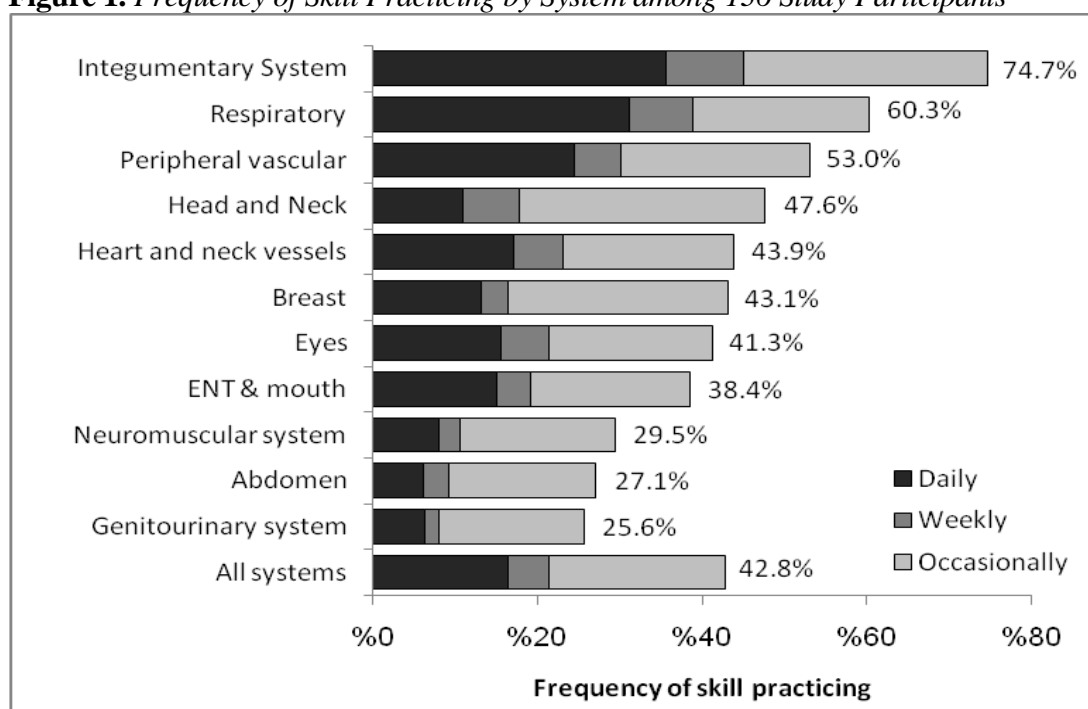
As shown in Table 2 and Figure 1, the most frequently practiced skills (all above the average) were the skills of the following systems; integumentary system (74.7%), respiratory (60.3%), peripheral vascular (53.0%), head and neck (47.6%), heart and neck vessels (43.9%), and breast (43.1%). On the other hand, the least frequently practiced skills (all below the average) were the skills of the following systems; genitourinary system (25.6%), abdomen (27.1%), neuromuscular system (29.5%), ENT & mouth (38.4%), and eyes (41.3%).

Table 2. Frequency of Skill Practicing by System among 136 Study Participants

	Number of skills	Daily		Weekly		Occasionally		Never		Overall	
		N*	%	N*	%	N*	%	N*	%	N*	%
All systems	159	3,513	16.3	1,090	5.1	4,592	21.4	12,300	57.2	21,495	100
Integumentary system	10	481	35.6	129	9.5	400	29.6	342	25.3	1,352	100
Head and neck	11	163	11.0	101	6.8	445	29.9	779	52.4	1,488	100
Eyes	20	421	15.6	158	5.8	539	19.9	1,587	58.7	2,705	100
ENT & mouth	21	426	15.1	117	4.1	545	19.3	1,742	61.6	2,830	100
Breast	5	89	13.1	23	3.4	181	26.6	387	56.9	680	100
Respiratory system	17	720	31.2	174	7.5	497	21.6	914	39.7	2,305	100
Heart and neck vessels	13	301	17.1	105	6.0	365	20.8	987	56.1	1,758	100
Peripheral vascular	13	432	24.5	99	5.6	403	22.9	827	47.0	1,761	100
Abdomen	21	175	6.2	88	3.1	504	17.8	2,067	72.9	2,834	100
Neuromuscular system	28	305	8.1	96	2.5	713	18.9	2,668	70.5	3,782	100

* N represents the sum of participant-skill responses.

Figure 1. Frequency of Skill Practicing by System among 136 Study Participants



Tables 3 and 4 show the top 30 individual skills practiced on a daily basis and the top 30 individual skills never practiced, respectively. The majority of the top 30 individual skills practiced on a daily basis belongs to respiratory (9/30), peripheral vascular (5/30), and integumentary (5/30) systems. Skills that were practiced on a daily basis (on average) in more than 50% of the times included; inspection of skin color & lesions (70.6%), inspection of respiratory system for respiration characteristics, movement, and symmetry (64.0%); person's position during respiration (64.0%); chest skin color and condition (62.5%); inspection for skin lesion (62.2%); palpation of the skin for texture, temperature, moisture, turgor and edema (56.6%), use of accessory muscles during respiration (53.7%), and inspection of peripheral vascular system for color, size, and hair distribution (53.7%). On the other hand, the majority of 30 individual skills

never practiced belongs to neuromuscular system (11/30) followed by abdomen (9/30), eyes (5/30), and ENT (4/30). Skills that were never practiced (on average) in more than 85% of the times included; special abdominal tests such as Murphy’s sign, shirting dullness, psoas sign, and obturator sign; testing abdominal reflexes, percussion of spleen, and ENT tests such as Weber test, Rinne test, and Romberg test.

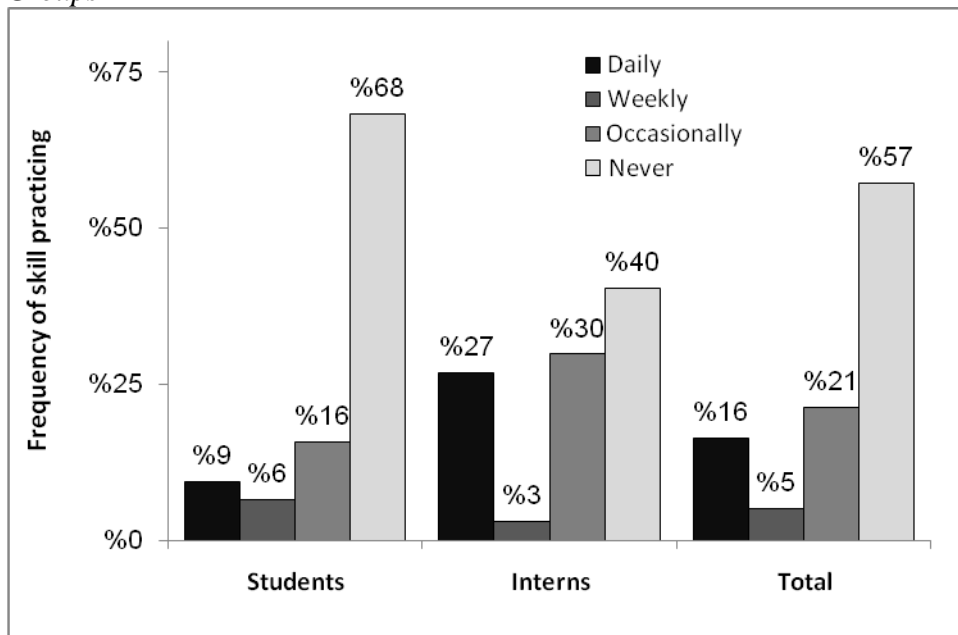
Table 3. *Top 30 Individual Skills Practiced on a Daily Basis among 136 Study Participants*

Ran k	System	Skill	N	%
1	Integumentary system	Inspection of skin color & lesions	96	70.6
2	Respiratory system	Respirations (characteristics, movement, symmetry)	87	64.0
3	Respiratory system	Person’s position	87	64.0
4	Respiratory system	Skin color and condition	85	62.5
5	Integumentary system	Inspection for skin lesion	84	62.2
6	Integumentary system	Palpate skin texture, temperature, moisture, turgor & edema	77	56.6
7	Respiratory system	Use of accessory muscles	73	53.7
8	Peripheral vascular	Inspection (color, size, hair distribution)	73	53.7
9	Peripheral vascular	Inspection (color, size, symmetry, hair distribution, fingertips for clubbing)	64	47.1
10	ENT & mouth	Lips	62	45.9
11	Heart and neck vessels	Assess heart rate and rhythm	61	44.9
12	Peripheral vascular	Capillary refill	56	41.5
13	Neuromuscular system	Mental status	55	40.7
14	Peripheral vascular	Skin	53	39.6
15	Abdomen	Auscultation: bowel sounds	52	38.5
16	Integumentary system	Palpate skin lesion	51	38.3
17	Respiratory system	Bronchial sounds	51	37.5
18	ENT & mouth	Teeth and gums	50	36.8
19	Respiratory system	Note adventitious breath sound	50	37.0
20	Integumentary system	Inspection of the nail for color, texture, shape, condition of nail bed	49	36.0
21	Respiratory system	Check configuration	49	36.6
22	Respiratory system	Vesicular	49	36.0
23	Peripheral vascular	Palpation (skin, pulses, epitrochlear lymph nodes, capillary refill)	49	36.0
24	Eyes	Inspection of iris & pupil	48	35.6
25	Respiratory system	Broncho-vesicular	48	35.3
26	Neuromuscular system	General inspection of ease of movement and flexibility of ROM	48	35.3
27	ENT & mouth	Tongue	47	34.6
28	Abdomen	Inspection of skin, umbilicus, contour, symmetry and pulsation	47	34.8
29	Heart and neck vessels	Inspection of external jugular vein pulsation	43	31.6
30	Head and Neck	Inspection of face for symmetry & facial features	42	30.9

Table 4. Top 30 Individual Skills Never Practiced among 136 Study Participants

Rank	System	Skill	N	%
1	Abdomen	Special Tests: Murphy's sign	119	88.1
2	Abdomen	Special Tests: Shirting dullness	119	88.1
3	Abdomen	Special Tests: Psoas sign	118	87.4
4	Abdomen	Special Tests: obturator sign	118	87.4
5	ENT & mouth	Weber test	117	88.0
6	ENT & mouth	Rinne test	116	87.2
7	ENT & mouth	Romberg test	116	87.2
8	Abdomen	Percussion of spleen	116	85.9
9	Abdomen	Testing abdominal reflexes	116	85.9
10	Abdomen	Special Tests: Rebound tenderness	114	84.4
11	Neuromuscular system	Two point discrimination	114	84.4
12	Neuromuscular system	Extinction	114	84.4
13	Neuromuscular system	Graphesthesia	113	83.7
14	ENT & mouth	Whisper voice test	112	84.2
15	Neuromuscular system	Achilles reflex	112	83.0
16	Neuromuscular system	Phalen's test	112	82.4
17	Neuromuscular system	Tunnel's test	112	82.4
18	Neuromuscular system	Stereognosis	111	82.2
19	Neuromuscular system	Brachioradialis reflex	111	82.2
20	Eyes	Check distance vision with Snellen chart	110	80.9
21	Eyes	Cover test	110	80.9
22	Abdomen	Percussion: kidneys (CVA)	110	81.5
23	Neuromuscular system	Rapid alternating hand movement	110	81.5
24	Neuromuscular system	Quadriceps reflex	110	81.5
25	Eyes	Check near vision	109	80.7
26	Eyes	Confrontation test	109	80.1
27	Eyes	Inspection of retinal vessels	109	80.1
28	Peripheral vascular	Manual compression test	109	80.1
29	Abdomen	Percussion: Liver span	109	80.7
30	Neuromuscular system	Heel-to-shin test	109	81.3

Figure 2. Overall Frequency of Skill Practicing for all Systems by the Study Groups



As shown in Figure 2, the overall frequency of skill practicing for all systems on a daily basis was lower among students as compared with interns (9% versus 27%, $p<0.001$) while the overall frequency of non-practicing skills was significantly higher among students as compared with interns (68% versus 40%, $p<0.001$). As shown in Table 5, system-specific frequency of skill practicing was better among interns as compared with students. The difference was highly significant ($p<0.001$) across all systems. For example, interns had between 20% to 30% higher frequency of practicing skills on a daily basis for the following systems; respiratory system (29.6% difference), peripheral vascular system (24.1% difference), integumentary system (21.8% difference), and ENT & mouth (20.8% difference).

Table 5. Frequency of System-Specific Skill Practicing by the Study Groups

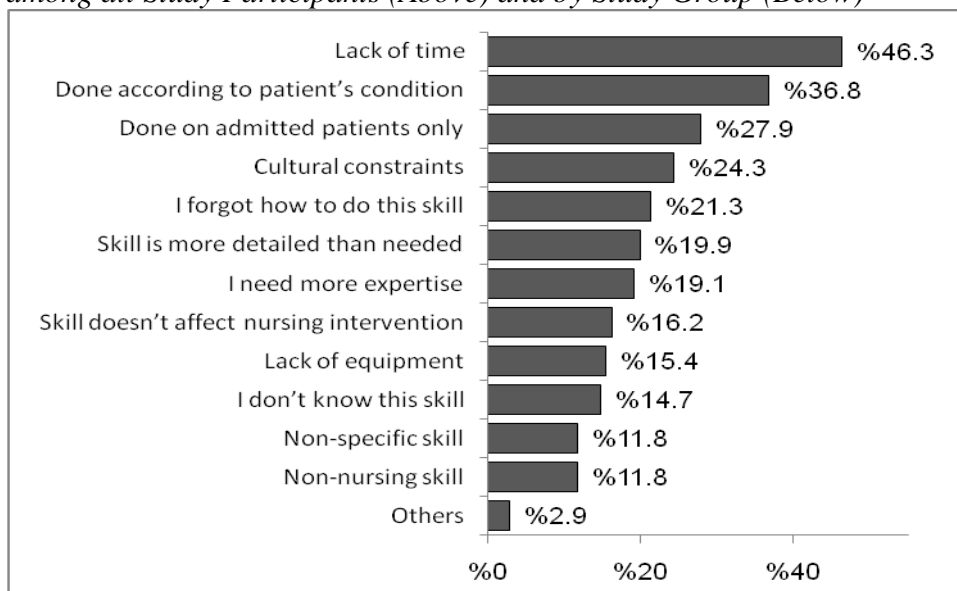
	Student		Interns		p-value
	N*	%	N	%	
Integumentary system					
<i>Daily</i>	219	26.9	262	48.7	<0.001
<i>Weekly</i>	100	12.3	29	5.4	
<i>Occasionally</i>	216	26.5	184	34.2	
<i>Never</i>	279	34.3	63	11.7	
Head and neck					
<i>Daily</i>	38	4.3	125	21.0	<0.001
<i>Weekly</i>	57	6.4	44	7.4	
<i>Occasionally</i>	214	23.9	231	38.9	
<i>Never</i>	585	65.4	194	32.7	
Eyes					
<i>Daily</i>	132	8.1	289	26.9	<0.001
<i>Weekly</i>	122	7.5	36	3.3	
<i>Occasionally</i>	289	17.7	250	23.2	
<i>Never</i>	1,086	66.7	501	46.6	
ENT & mouth					
<i>Daily</i>	114	6.7	312	27.5%	<0.001
<i>Weekly</i>	90	5.3	27	2.4%	
<i>Occasionally</i>	198	11.7	347	30.6%	
<i>Never</i>	1,295	76.3	447	39.5%	
Breast					
<i>Daily</i>	34	8.3	55	20.4	<0.001
<i>Weekly</i>	16	3.9	7	2.6	
<i>Occasionally</i>	48	11.7	133	49.3	
<i>Never</i>	312	76.1	75	27.8	
Respiratory system					
<i>Daily</i>	270	19.5	450	49.0	<0.001
<i>Weekly</i>	145	10.5	29	3.2	
<i>Occasionally</i>	271	19.5	226	24.6	
<i>Never</i>	701	50.5	213	23.2	
Heart and neck vessels					
<i>Daily</i>	107	10.1	194	27.7	<0.001
<i>Weekly</i>	82	7.8	23	3.3	
<i>Occasionally</i>	138	13.1	227	32.4	
<i>Never</i>	730	69.1	257	36.7	
Peripheral vascular					
<i>Daily</i>	159	15.0	273	39.1	<0.001
<i>Weekly</i>	73	6.9	26	3.7	
<i>Occasionally</i>	194	18.3	209	29.9	
<i>Never</i>	636	59.9	191	27.3	

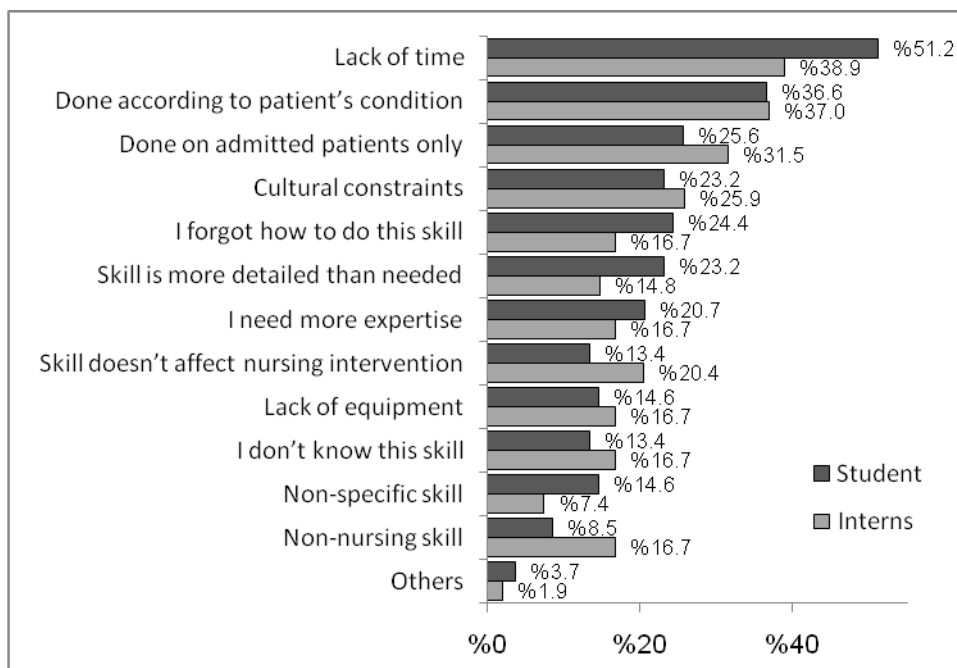
Abdomen					
<i>Daily</i>	74	4.3	101	9.1	<0.001
<i>Weekly</i>	69	4.0	19	1.7	
<i>Occasionally</i>	209	12.1	295	26.5	
<i>Never</i>	1,370	79.6	697	62.7	
Neuromuscular system					
<i>Daily</i>	74	3.3	231	15.3	<0.001
<i>Weekly</i>	78	3.4	18	1.2	
<i>Occasionally</i>	267	11.8	446	29.5	
<i>Never</i>	1,853	81.6	815	54.0	

* N represents the sum of participant-skill responses. Chi-square test was used to test statistical significance between students and interns.

As shown in Figure 3, the most frequently reported reasons for not practicing some of the taught skills included; lack of time (46.3%), skill is practiced according to patient's condition (36.8%), skill is practiced for admitted patients only (27.9%), cultural constraints (24.3%), I forgot how to do (21.3%), skill is detailed than needed (19.9%), I need more expertise to do the skill (19.1%), skill does not affect nursing intervention (16.2%), lack of equipment needed to practice the skill (15.4%), and lack of knowledge (14.7%). Although there were some differences between the students and interns in some reported reasons such as lack of time and skill is detailed than needed which were reported more by students, none of these differences were statistically significant.

Figure 3. *Reported Reasons for Not Practicing Some of the Taught Skills among all Study Participants (Above) and by Study Group (Below)*





Discussion

The current study revealed a significant under-practicing of physical assessment skills in a University-affiliated hospital in Saudi Arabia among a group of senior nursing students and intern nurses who have been recently taught these physical assessment skills. The current finding reinforces the findings from similar previous studies done internationally among nursing students in their final year (Douglas et al. 2015, Kohtz et al. 2017). For example, Douglas et al. (2015) surveyed 208 graduating nursing students at an Australian university for the use of 120 physical assessment skills and found that only 15 (12%) skills were regularly or frequently practiced, 23 (18%) skills were occasionally or rarely practiced, and 88 (70%) skills were never practiced. Similarly, studies done among registered/experienced nurses showed that between 24% and 34% of the physical assessment skills commonly found in nursing textbooks and/or taught in undergraduate nursing courses were frequently or routinely practiced (Secrest et al. 2005, Giddens 2007, Birks et al. 2013, Anderson et al. 2014). For example, Secrest et al. (2005) found that only 29% out of the 120 physical assessment skills surveyed were regularly (daily or weekly basis) practiced, as reported by 51 registered nurses selected purposively from several states in the USA. Similarly, Birks et al. (2013) conducted online survey among 1,220 mainly experienced nurses in Australia and found that only 34% of the 121 physical assessment skills commonly taught in nursing educational programs were routinely practiced.

The frequency of practicing physical assessment skills in the current study was higher among interns than students. This may be explained by the more exposure to patients and the more confidence in active involvement in

assessment among intern nurses as compared with nursing students. There is limited data to support this finding from previous studies done among nurses. However, it was found that the performance of physical examination skills among medial resident improves after 1 month of inpatient wards experience (Willett et al. 2007). Additionally, senior residents performed better and were more confident on physical examination skills than graduated medial students who just started their residency (Willett et al. 2007). It is worth mention that study finding does not imply that the performance of physical examination skills improves with more years of nursing experience or education level. As stated above, the under-practicing of physical examination skills was similarly observed in nursing students (Douglas et al. 2015, Kohtz et al. 2017) and experienced nurses (Birks et al. 2013). Moreover, the lower frequency of performing physical examination skills was similarly reported in both associate and baccalaureate degree prepared nurses (Giddens 2006).

The current study showed that the top practiced 30 physical examination skills were mainly inspections or general observations of respiratory, peripheral vascular, and integumentary systems while the majority of the never practiced 30 physical examination skills were neuromuscular, abdominal, eye, and Ear, Nose and Throat (ENT) tests in addition to abdominalpercussion. The current finding is very much similar to previous studies (Giddens 2007, Anderson et al. 2014, Douglas et al. 2015, Douglas et al. 2016). For example, respiratory and cardiovascular skills were consistently chosen as core skills that are and should be frequently practiced by nurses (Giddens 2007, Douglas et al. 2016). Similar to the current finding, the 15 core skills identified by Douglas et al. (2015) as regularly or frequently practiced by nursing students were mainly related to inspection or general observation of the patient, with none of the complex palpation, percussion, or auscultation techniques were involved. Additionally, several abdominal, musculoskeletal, ear, and eye tests were among the 71 non-essential skills identified by Anderson et al. (2014) as never or rarely practiced by nurses.

The under-practicing of the taught physical assessment skills observed in the current and previous studiesshould back the debate about the content and the effectiveness of the current undergraduate nursing curricula (Giddens and Eddy 2009). It has been suggested that nursing students are taught too much non-relevant information regarding physical assessment skills (Giddens and Eddy 2009, Douglas et al. 2015). Although some individual efforts have been done (Birks et al. 2014, Shinozaki and Yamauchi 2009), but more efforts are probably still required to reach a consensus about what should be taught and what should be removed from undergraduate nursing educational courses teaching physical assessment skills. The frequency of practicing physical assessment skills in clinical setting should not be the only factor in determining the retaining or removal of a skill in the undergraduate nursing curricula (Birks et al. 2014). There should be a balance between the comprehensive nature of the assessment, culture constraints, available resources, accreditation standards, industry requirements, and realities of the clinical environment (Birks et al. 2014).

The most frequently reported reasons for not practicing a considerable portion of the taught physical assessment skills included lack of time, being practiced according to patient's condition or only in certain patient's conditions, cultural constraints, and lack of knowledge/expertise. To some extent, the current finding was similar to the findings from the only study that focused on the factors that influence the assessment practices of nurses (Douglas et al. 2014). In that study, reliance on others and technology, lack of time, lack of confidence, ward culture, lack of influence on patient care, lack of nursing role models, and specialty area were the main barriers among nurses to practice physical assessment skills in the acute hospital setting in Australia (Douglas et al. 2014). The current findings could be beneficial for local and international educational and nursing experts who are working on improving the effectiveness of undergraduate nursing programs. This is especially important in Saudi Arabia where undergraduate nursing programs are relatively recent and still developing.

The current study is considered the first local study to evaluate the assessment practices of nursing students and interns in addition to determining self-reported barriers for optimal practice. Additionally, the study were also able to compare the assessment practices of students and interns. Unlike some previous studies, the study did not include rarely practiced skills with never practiced, as some skills are known to be practiced according to patient's condition or only in certain patients. Nevertheless, some limitations are acknowledged. For example, being a single-center study the findings should be interpreted with caution. Since the study design involved self-reported cross-sectional data collection, recall bias cannot be excluded. However, such limitations are very minor and cannot be avoided in the majority of similar studies.

In conclusion, we are reporting a significant under-practicing of physical assessment skills at a University-affiliated hospital in Saudi Arabia among a group of senior nursing students and intern nurses who have been recently taught these physical assessment skills. Although the under-practicing was evident in both groups, the frequency of practicing physical assessment skills was significantly better in interns than students. The most frequently reported reasons for not practicing a considerable portion of the taught physical assessment skills included lack of time, being practiced according to patient's condition or only in certain patients, cultural constraints, and lack of knowledge/expertise. The current findings may help educational and nursing experts who are working on improving the effectiveness of undergraduate nursing programs, by better characterizing the under-practicing problem and the reasons behind it.

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