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Article

Learning Self-Efficacy as Predictor of Nursing Students' Performance of Clinical Skills

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Abstract

Integration of knowledge with practice is a priority in the domain of nursing training to ensure quality of nursing education and maintain safety practices after graduation in their professional career. Past studies have raised concern that nursing students find clinical training as a stressful experience. This study aimed at examining the prediction power of learning self-efficacy on performance of clinical skills and ability to control sociodemographic characteristics among nursing students. This study used descriptive correlation approach. Data was collected through an online survey of L-SES and professional and clinical skills from a sample of 296 students identified through convenience sampling method. The data analysis used a two-step hierarchical regression analysis method where sociodemographic were entered in Model 1 (age, gender, and academic level of students) and domains of learning self-efficacy namely psychomotor, cognitive, and affective, were entered in Model 2. The analysis showed that the Model 1 was statistically significant ($F = 29.4$, $p < .001$, $R^2 = 0.337$) regarding professional skills. The study recommends identifying such personal and organizational factors that could enhance clinical performance among nursing students. This study would prove significant to higher education institutions and academics to emphasize that personal factors and self-efficacy of the nursing students can predict a better performance in clinical settings. The study recommends revising the training format of the nursing schools and explore alternatives of taking learning and training away from traditional nursing educational settings.

Keywords

Self-efficacy, personal factors, clinical performance, Nursing, Professional Skills, Clinical Skills

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Self-efficacy is one essential component that enables academic success of nursing students and improves their abilities to acquire skills during training courses (Kang et al., 2019). Clinical training composes approximately fifty percent of nursing curricula inferring that self-efficacy is one primary component to develop and enhance nursing students' skills and capacity (Yaghobyan et al., 2008). However, nursing schools might not adhere to protocols and standards of nursing education contributing to low level of performance and low quality of nursing training (Alshammari et al., 2018). Such situation may create a confusion of students who are supposed to apply learnt knowledge while low standards of applications are posed (Ahmed & Mohammed, 2019). Therefore, nursing students' self-efficacy is one significant component that might enable nursing students to improve their application of knowledge and improve their professional skills.

Literature Review

Developing competencies of nursing students has been becoming core component to nursing educators and school administrators. Nursing students are exposed to various forms of stressors during their clinical training courses including fear of infection, unsafe practices, and low evaluation for their performance that may lead to medical errors and mistake threatening patient's safety (Alsaqri, 2017). The outbreak of COVID-19 urged the need to improve clinical education and provide with skills and knowledge that enabled them to practice their profession safely. Such progression required that nurse educators work to improve self-efficacy of nursing students. Self-efficacy refers to "one's ability to take actions to manage a future situation (Stump et al., 2012; Wallenius et al., 2020). Such a belief infers that nursing students have the power to complete the given assignment, tasks and activities related to assumed competency and producing positive learning outcomes after having once acquired the appropriate level of self-efficacy (Bandura, 1989).

Studies have shown several factors contributing to development of self-efficacy among nursing students such as clinical realities, clinical environment, students' academic capabilities, and personal factors (Darawad et al., 2018; Salimi et al., 2017). Such findings indicate that nursing students are under influence of different factors that may influence their abilities; and therefore, affect their self-efficacy. For example, nursing students who receive training in lab probably have different level of self-efficacy than those who receive training in clinical settings (Abdal et al., 2015). To enhance learning self-efficacy, it is essential to integrate concepts of self-efficacy into clinical nursing courses showing instructors and tutors the role of self-efficacy in achieving learning objectives and outcomes of nursing education and training (Henderson et al., 2018; Nasrollahzadeh & Koramaz, 2020).

Past literature has sustained that nurse educators need to restructure their courses to enhance inquiry by nursing students (Henderson et al., 2018). Furthermore, nursing students, similar to other university students, are overwhelmed with academic responsibilities, stressors related to their psychosocial wellbeing and development, and lack support system that could enhance their abilities to manage their social and psychological needs (Hamaideh et al., 2021; Hamdan-Mansour et al., 2020; Hamdan-Mansour et al., 2018). This requires that there is a need to explore nursing students' capabilities and their self-efficacy and analyze how it affects their professional performance in clinical settings. Thus, student's self-efficacy is considered a good indicator in predicting students' performance (Zengin et al., 2014). Past literature also suggested that assessing learning self-efficacy for clinical skills was significant for effective learning strategy and would have a positive impact on academic performance of nursing students during their clinical training (Robb). Moreover, self-efficacy among nursing students has also enabled lessening the nursing theory-practice gap producing higher level of compatibility and academic satisfaction (Suard, 2020; Zengin et al., 2014).

The past literature did provide sufficient information regarding the components of self-efficacy among general population and nurses; nevertheless, there is still a lack of information about elements like safety measures among nursing students. Studying students' self-efficacy would enable addressing safety issues of the nursing students and ascertaining the extent to which evidence-based training and tutoring can guide them. Fearing risk of harming patient, willingness to perform, and managing uncertainty were a few of the most reported concerns among nursing students

which increased their academic anxiety (Fawaz & Hamdan-Mansour, 2016; Fawaz et al., 2018; Ozarkan & Dogan, 2020; Shehadeh et al., 2020; Smith & Stamatakis, 2020). It has also been suggested that examining and understanding factors related to self-efficacy would enable better performance of the nursing students. For instance, Quine, Henderson et al. (2018) suggested that self-efficacy was a culturally-based concept; therefore, differences in cultures may produce different components that requires attention and more investigation. Although nursing curricula might be similar, globally, specifications related to clinical training at healthcare settings in each culture might affect self-efficacy among nursing students. Thus, a culturally sensitive assessment of learning self-efficacy may contribute to valuable knowledge that can be utilized by nursing educators as baseline assessment for their students' confidence in performing their clinical skills (Kilybayeva & Nurshanov, 2020; Uludağ, 2020).

The purpose of this study was to explore learning self-efficacy and examine prediction power of self-efficacy on nursing student's performance of clinical skills in Saudi Arabia. The specific research questions examined in this study included to find out the level of learning self-efficacy for clinical skills among nursing students in Saudi Arabia; whether learning self-efficacy predicted performance of clinical skills among nursing students in Saudi Arabia; and the kind of differences in self-efficacy related sociodemographic characteristics of nursing students.

Methods

Research Design

This research paper adopted a quantitative cross-sectional research design. This design enabled the investigators to collected data using online survey to measure learning self-efficacy, nursing skills performance, and sociodemographic characteristics during the COVID-19 lockdown extending between June 2020 and March 2021.

Research Sample and setting

This study was conducted at four tertiary-teaching hospitals in Saudi Arabia, where students were undergoing their undergraduate clinical training. Convenience sampling technique was used to ensure more involvement of participants. The participants included Saudi nursing students who were officially registered in the academic year 2019-2020, were undertaking their clinical training in four hospitals, were voluntarily willing to participate, and who were available during the whole period of the study. No exclusion or inclusion criteria were however used to maximize participation.

Data collection procedure

An online survey was created using Google forms and sent to the nursing students via online learning portals such as Moodle and Blackboard as well as through other social networking portals. The survey was sent to 400 students, out of which 296 students completed the survey with a response rate of 74.0%. The students who refused to fill the survey indicated high load of online assignments and tight schedules. Upon recruitment, the students received an email invitation to participate in the research study, which included an explanation of research objectives and background, asking them to reply to the email as evidence of the consent of their participation. A week after receiving their consent to participate, a digital survey was mailed to them.

Ethical Considerations

The students were informed that participation is strictly voluntary and if they decide not to participate in the study, it will not pose any disadvantage to them. The participants were informed that the information they would share in the survey would remain anonymous and confidential. The data would be locked in a password protected folder on the PC of the investigators. The work described was carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to biomedical journals. Ethical approval from the Institutional Review Board of XYZ University was also obtained before conducting the study.

Instrumentation and procedure

Data were collected using an Arabic version of an adapted self-administered questionnaire. Translation of the tool was carried out using the World Health Organization (WHO) guidelines. Pilot testing was conducted (n = 15) to check on understanding, clarity, and time required for completing the questionnaires. In addition, a few author-developed profile questions were used to obtain demographic information. The following tools were used in this study:

1. Learning self-efficacy was measured using the L-SES (Kang et al., 2019). L/SES is a 12-item questionnaire comprising three domains of clinical skills self-efficacy namely cognitive domain, with 4 items; affective domain, with 4 items; and psychomotor domain, with 4 items. A five-point Likert-scale was used with the following response categories: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. The higher the score the more self-efficacy was indicated. Interquartile equation was used to decide the level of self-efficacy. The coefficients of item-total correlations varied between 0.695 and 0.822 for the entire L-SES. All four questions in the cognitive domain of the L-SES had item-total correlations that varied between 0.761 and 0.808. For the four questions in the affective domain of the L-SES, item-total correlations ranged between 0.721 and 0.755. Four questions in the psychomotor domain exhibited item-total correlations between 0.695 and 0.822. Finally, the reliability of the L-SES resulted in a Cronbach's α coefficient of 0.931 for all the 12 questions (Kang et al., 2019). Hence, the items in the questionnaire showed good reliability with Cronbach's alpha of .86.
2. A customized tool was developed to measure clinical nursing skills and clinical performance (Kahya & Oral, 2018). The tool was adapted to fit with nursing students rather than nurses already in the profession. The tool contained 41 items in eight domains including the domains of professional and clinical skills. To this study, the professional skills domain contained (four items) and clinical skills carried (6 items). The nursing students were asked to rate each item in terms of the significance of each item in their work environment on a seven-point scale: from 1 (never required) to 7 (critical). The higher was the total score, the greater was their perception towards performance and clinical skills. The scale had a good internal consistency with Cronbach's alpha of .75 (professional domain) and .87 (clinical skills). The scale also showed good reliability with Cronbach's alpha of .85 (professional skills) and .77 (clinical skills).
3. The demographic characteristics included in the tool included age, gender, academic level, hospital of clinical training, and area of clinical training.

Data analysis

Data was processed using IBM-SPSS-25. Self-efficacy, students' performance of skills and sociodemographic variables were described using the central tendency measures and dispersion measures. Repeated two-steps hierarchical regression analysis was used to test prediction power of self-efficacy on clinical performance. Measurement scales like *t*-test, ANOVA when appropriate, and Pearson r were used to test association as well as differences to compare groups of participants. Standardized regression analysis to obtain sociodemographic factors were used to test the regression power of self-efficacy on clinical performance. The Alpha was set to .05 as the threshold value.

Results

A total of 296 students completed and returned the survey. As shown in Table 1, the nursing students' age ranged from 18 to 25 years. More than half of the participants were between 20 years and 25 years old (n = 160, 54%). The male participants numbered about 187 (63%) while the female number was 110 (37.3%). Half of the total participants were in level 4 (2^{nd} year) (n=148, 50.1%) and the remaining half in other levels. Table 1 presents the demographic characteristics of the whole sample.

Table 1. *Demographic characteristics of nursing students (N = 296)*

Demographic characteristics	*n*	*%*
Age in years		
18	1	0.3
19	34	11.7
20	100	34.0
21	65	22.0
22	68	22.8
23	18	6.1
24	7	2.5
25	2	0.6
Gender		
Male	186	62.7
Female	110	37.3
Academic level		
Level 4	148	50.1
Level 5	52	17.6
Level 6	49	16.4
Level 7	17	5.6
Level 8	31	10.3
Year level		
2nd Year	148	50.1
3rd Year	101	34.0
4th Year	47	15.9
Training hospital		
Hospital 1	199	67.1
Hospital 2	50	17.0
Hospital 3	44	14.8
Hospital 4	3	1.1
Area of clinical training		
Pediatric	40	13.4
Maternity	2	0.8
Medical-Surgical	174	58.8
Critical Care	28	9.5
Mental Health	1	2.5
Community	35	7.0
Outpatient	101	8.1
Pediatric	65	13.4

On measuring the learning self-efficacy, the analysis showed that mean total score of the learning self-efficacy scale (Table 2) was 42.9 (SD = 8.9) ranging from 12 to 60. With 50% of the scores being 44 or above, the analysis indicated that students' learning self-efficacy was moderate to high. Regarding the domains, the mean item for psychomotor domain was 13.9 (SD = 3.7) and 50% of scores was 14.0 or above indicating moderate perception. Regarding cognitive domain, the mean item was 14.3 (SD = 3.6) and 50% of scores was 15.0 or above indicating moderate perception, and almost similar values were seen in the affective domain (M= 14.7, SD = 3.6) and 50% of the total scores was 15.0 or above indicating moderate level of perception.

Table 2: *Descriptive of learning self-efficacy and performance of clinical Skills (N = 296)*

Variable		*M*	*SD*	*Range*	*Md (P_{50})*
Learning self-efficacy	Total	42.9	8.9	12-60	44.0
	Psychomotor	13.9	3.7	4-20	14.0
	Cognitive	14.31	3.6	4-20	15.0
	Affective	14.7	3.6	4-20	15.0
Performance of clinical skills	Total	48.5	12.4	14-69	50.0
	Professional skills	20.6	5.4	5-28	22.0
	Clinical Skills	27.9	7.8	8-42	29.0

Furthermore, regarding the item analysis under professional skills, the highest score was observed on "monitoring clinical nursing skills for improvements" (n = 207, 70%), "monitoring clinical nursing skills operations and making needed adjustments" (n = 201, 68%), and "recalling how to perform clinical nursing skills" (n=189, 64%) and in paying more attention to information related to clinical nursing courses. The results apparently suggest that more than half of the participants developed their psychomotor and affective self-efficacy well.

Table 2 also presents the performance of clinical skills whose total of mean items was 48.5 (SD= 12.4) ranging from 14 to 69. The mean of professional skills was 20.6 (SD= 5.4) ranging from 5 to 24. With 50% of students scoring 22 or above, the analysis indicated that students had a high level of performance. The mean of clinical skills was valued as 27.9 (SD= 7.8) ranging from 8 to 42. With 50% of students scoring 29 or above, the analysis indicated that students had a moderate level of performance. On the other hand, the analysis also showed that the highest mean item score of professional skills domain was in item 3 "Identify and assessing of the patient's problems" with mean of 5.5 (SD = 1.4), while the lowest was item 1 "calmness" with mean of 4.5 (SD = 1.6). Furthermore, the analysis also showed that the highest mean item score of clinical skills domain was in item 6 "Endorsing and following clinical rules, procedures and hospital policies" with mean of 5.4 (SD = 1.7), while the lowest mean was in item 3 "Delivering well-prepared or careful nursing service to the patient" with mean of 3.5 (SD = 2.0).

Table 3-A presents the self-efficacy on professional skills using a two-step hierarchical regression analysis where sociodemographic factors were entered in model 1 and domains of learning self-efficacy in model 2. The analysis for professional skills showed that model 1 was statistically significant (F = 29.4, p < .001). The model explained 33.7% (R^2 = .337) of the variation in professional skills.

Table 3 A. *Two step Multiple Hierarchal Regressing learning self-efficacy on professional skills among nursing students (N = 296)*

Variables	*Model 1*		*Model 2*	
	β	*P- value*	*β*	*P- value*
Age	.132	.031	2.241	.026
Gender	.558	<.001	11.075	<.001
Academic level	.172	.007	2.758	.006
Type of hospital	.002	.963	-.018	.986
Type of unit	-.145	.005	-2.819	.005
Psychomotor Self-Efficacy			-.819	.414
Cognitive Self-Efficacy			.989	.323
Affective Self-Efficacy			1.265	.207
R^2	.337	F = 29.4, p<.001	.347	F = 19.0, p< .001
Adjusted R^2	.325		.328	
R^2 *change*	--		.332	> .05

When psychomotor, cognitive, and affective domains were added to model 2, the model remained significant (F = 19.0, p <.001) and showed the values of 34.7% (R^2 = .347). The Δ R^2 was not statistically significant (p > .05). However, in model 1, all factors were significant predictors except for type of hospital, while in model 2 none of the learning self-efficacy domains was a significant predictor.

Table 3-B presents the self-efficacy on clinical skills using a two-step hierarchical regression analysis where sociodemographic factors were entered in model 1 and domains of learning self-efficacy in model 2. The analysis for clinical skills showed that model 1 was statistically significant (F = 63.7, p < .001). The model explained 52.3% (R^2 = .523) of the variation in clinical skills. When psychomotor, cognitive, and affective domains were added to model 2, the model remained significant (F = 40.1, P <.001) and was able to explain 52.8% (R^2 = .528) of variation in clinical performance. However, the Δ R^2 was not statistically significant (p > .05). In model 1, all factors were significant predictors except for type of hospital and area of practice, while in model 2 none of the learning self-efficacy domains was a significant predictor.

Table 3 B. *Two steps Multiple Hierarchal Regressing learning self-efficacy on clinical skills among nursing students (N = 296)*

Variables	*Model 1*		*Model 2*	
	B	*P- value*	*β*	*P- value*
Age	.127	.015	.129	.014
Gender	.719	<.001	.726	<.001
Academic level	.215	<.001	.213	<.001
Type of hospital	-.024	.563	-.022	.603
Type of unit	-.077	.078	-.077	.077
Psychomotor Self-Efficacy			.001	.978
Cognitive Self-Efficacy			-.020	.695
Affective Self-Efficacy			.077	.167
R^2	.523	F = 63.7, p<.001	.528	F = 40.1, p< .001
Adjusted R^2	.515		.515	
R^2 *change*	--		.008	> .05

Table 4 shows the results of the tests conducted to find significant differences on cognitive, affective and psychomotor domains of self-efficacy. The test for determining significant differences on learning self-efficacy as a whole was conducted using gender, dichotomized training hospital (Hospital 1 and collectively, others), and dichotomized training area (Medical-Surgical and collectively Pediatric, Maternity, Critical Care, Mental Health, Community, Outpatient, and others). The cognitive self-efficacy among male students (Mdn=36) did not differ significantly from that of female students (Mdn=33), U=13,670.00, z = −1.54, p=.12, r=−.08. the affective self-efficacy among male students (Mdn=60) also did not differ significantly from that of female students (Mdn=44), U=13,951.50, z=−1.25, p=.21, r=−.07. Likewise, the psychomotor self-efficacy among male students (Mdn=46) also did not differ significantly from that of female students (Mdn=28), U=14,644.00, z −.48, p=.63, r=−.03. Overall learning self-efficacy among male students (Mdn=36) also did not differ significantly from that of female students (Mdn=31), U=14,700.00, z=−.42, p=.67, r=−.02.

Table 4. *Results of test for significant difference (N = 296)*

	Gender *Male* *Median*	*Female* *Median*	*U*	*z*	*p-value*	*Effect size r*[†]
Cognitive self-efficacy	36	33	13,670.00	-1.54	.12	-.08
Affective self-efficacy	60	44	13,951.50	-1.25	.21	-.07
Psychomotor self-efficacy	46	28	14,644.00	-0.48	.63	-.03
Learning self-efficacy-total	36	31	14,700.50	-0.42	.67	-.02
	Training Hospital					
	Hospital 1 Median	Others Median				
Cognitive self-efficacy	48	21	13044.50	-1.32	.18	-.07
Affective self-efficacy	70	34	13842.50	-0.43	.66	-.02
Psychomotor self-efficacy	50	24	13861.50	-0.41	.68	-.02
Learning self-efficacy	44	23	13699.50	-0.60	.55	-.03
	Training Area					
	Medical-Surgical Median	Others Median				
Cognitive self-efficacy	38	31	15336.00	-0.30	.77	-.02
Affective self-efficacy	59	45	15216.00	-0.43	.66	-.02
Psychomotor self-efficacy	42	32	14941.00	-0.73	.46	-.04
Learning self-efficacy	33	34	15316.00	-0.33	.74	-.02

[†]Formula: $z / \sqrt{N} = r$

Table 4 also reveals that cognitive self-efficacy among those who had training at Hospital 1 (Mdn=48) did not differ significantly from those who had training in other training hospitals (Mdn=21), U=13,044.50, z=−1.32, p=.18, r=−.07. The affective self-efficacy among those who had received training at Hospital 1 (Mdn=70) also did not differ significantly from those who had training in other training hospitals (Mdn=34), U=13,842.50, z=−0.43, p=.66, r=−.02. The psychomotor self-efficacy among those who had training at Hospital 1 (Mdn=50) did not differ significantly from those who had training in other training hospitals (Mdn=24), U=13,861.50, z=−0.41, p=.68, r=−.02. The overall learning self-efficacy among those who had training at Hospital 1 (Mdn=44) did not differ significantly from those who had training in other training hospitals (Mdn=23), U=13,699.50, z=−.60, p=.55, r=−.03.

The cognitive self-efficacy among those who were concurrently taking training in the Medical-Surgical area (Mdn=38) did not differ significantly from those who were concurrently pursuing training in other clinical areas (Mdn=31), U=15,336.00, z=−0.30, p=.77, r=−.02. the affective self- efficacy among those who were concurrently training in the Medical-Surgical area (Mdn=59) did not differ significantly from those who are concurrently training in other clinical areas (Mdn=45), U=15,216.00, z=−0.43, p=.66, r=−.02. Likewise, the psychomotor self-efficacy among those who concurrently took training in the Medical-Surgical area (Mdn=42) did not differ significantly from those who took concurrent training in other clinical areas (Mdn=32), U=14,941.00, z=−0.73, p=.46, r=−.04. The overall learning self- efficacy among those who took training concurrently in the Medical-Surgical area (Mdn=33) did not differ significantly from those who were concurrently pursuing training in other clinical areas (Mdn=34), U=15,316.00, z=−0.33, p=.74, r =−.02. To sum up, therefore, results reveal that cognitive, affective, psychomotor, and overall learning self-efficacies did not differ significantly when grouped either by gender, training hospital, and training area.

The bivariate correlations using Spearman's Rank correlation coefficient (r_s) was also conducted with overall learning self-efficacy as the dependent variable and age, gender, academic level, training hospital, area

of clinical training, cognitive self-efficacy, affective self-efficacy, and psychomotor self-efficacy as its constructs. Table 5 results show that age r_s=.01, p=.925; gender r_s=.02, p=.677; academic level r_s=−.05, p=.363; training hospital r_s=−.03, p=.597; and area of clinical training r_s=.02, p=.770 were not significantly associated with the overall learning self-efficacy. The cognitive self-efficacy was seen significantly associated with overall learning self-efficacy r_s=.71, p<.001 which explained 50.27% of the variance was in overall learning self-efficacy. The affective self-efficacy was found significantly associated with overall learning self-efficacy r_s=.63, p<.001 and explained 39.44% of the variance was in overall learning self-efficacy. Likewise, the psychomotor self-efficacy was also significantly associated with overall learning self-efficacy r_s=.84, p<.001 and explains 71.23% of the variance in overall learning self-efficacy. Therefore, an increase in cognitive, affective, and psychomotor self-efficacies contributed significantly in the increase in overall learning self-efficacy.

Discussion

Learner's self-efficacy (L-SES) has become a vital concept among nurse educators due to its significant effects and subsequent impact on learners' performance and clinical skills. The variations in educational settings have evoked researchers to call for more testing of self-efficacy in various education settings (Kang et al., 2019). This study found that L-SES did not significantly predict students' performance of clinical skills (PCS), while the demographic characteristics such as age, gender, and academic level appeared as significant predictors. In other words, students' professional and clinical skills were not associated with students' perception of their self-efficacy, while factors such as age, academic level and gender did associate and contribute to the differences in their performance and clinical skills. Although the nursing students sampled for this study showed high levels of L-SES and moderate to high level of professional and clinical skills, the analysis did not show any significant association, nor did it confirm the prediction power of self-efficacy on professional and clinical skills. With these results, it is hoped that this study would make a significant contribution to the body of knowledge**.**

In the past research studies, L-SES has been associated with students' performance of clinical skills, clinical realities, clinical environment, and students' academic capabilities (Alsaqri, 2017; Salimi et al., 2017; Yaghobyan et al., 2008). The current study, however, contradicts all these studies as it did not find any such relationship between self-efficacy and nursing students' performance. These results confirm the concern raised by Kang et al. (2019); Momeni Danaei et al. (2018), who pronounced that L-SES needs more investigations across cultures and educational settings. In Saudi Arabia, a few studies have attempted to address the barriers and obstacles of clinical training of nursing students. The healthcare system in Saudi Arabia do support training at various levels and format; however, very little is known about how the nursing students, who are mainly females, perform in clinical settings. This explains why self-efficacy has not been associated with clinical performance in the past studies.

Furthermore, the findings of the current research did support two other issues: the personal differences among the nursing staff and the educational training system. The study did confirm that the nursing educational system relied on certain training settings that varied. It is also assumed that very strict educational curricula might have contributed to raise the importance of educational materials rather than personal capabilities. This indicates that nursing educational system needs to be revised to enhance personal capabilities and students' perceptions and their willingness to learn. This would ensure positive impact of students' personal capabilities on their perceptions of clinical performance. Another explanation for variations could be related to online learning as most students during the period of research received their education through online platforms due to the outbreak of COVID-19.

Nursing is a career that requires more face-to face interaction and hands on teaching. Using simulation and high-fidelity simulation could be one proposed solution to enhance learning and clinical judgment. If applied, this would enhance the effect of L-SES on students' clinical performance (Fawaz & Hamdan-Mansour, 2016; Fawaz et al., 2018). It is also assumed that nursing students' clinical performance might have been influenced by

students' online teaching and loss of continuity and sustainability of clinical tempo due to COVID-19 during the past 18 months. While no association was found between L-SES and clinical performance among students' age, gender and academic level, they still remained significant predictors of students' clinical performance. This indicates and confirms that clinical performance is more personal rather than being factors that can be manipulated by the education system.

The results do partially agree with a few past studies (Alshammari et al., 2018; Henderson et al., 2018) which observed that students took the lead in their clinical training and thus their personal qualities and characteristics influenced their clinical performance. In the current research, it was observed that students in their 4th level (2nd year) had the highest level of clinical performance inferring that clinical performance was being genuine factors and that students at this level were not exposed adequately to clinical settings since most of their training was in laboratory settings. In Saudi Arabia, heterogeneous working settings is still rare and novel as the culture is still making some restrictions on merging male and female nursing students in classes and clinical settings. This may raise the issue of the differences between male and female training in education settings and in turn making a significant effect on their performance and clinical skills.

Conclusion

The study found that L-SES did not predict students' performance as well as clinical skills, although in combination with personal factors, it was found contributing significantly in clinical performance. The sociodemographic factors such as age, academic level and gender were found to be significant predictors of clinical performance. The study also found that nursing students had moderate to high levels of L-SES and performance as well as clinical skills. However, there were no significant associations between the domains of learning self-efficacy and clinical performance. One limitation of this study was using the online survey for data collection where observations for students' performance (in person) could have revealed more robust and valid information regarding students' performance and capabilities. The study results have high implications for faculties, administrators, and policy makers in nursing education settings. The study recommends making a revision of the nursing curricula and integrate the components of L-SES into nursing content and clinical training. This may include enhancement of terms like clinical judgment and capabilities rather than personalization of self-efficacy. Further studies are also needed to explore validity and reliability of L-SES among different educational and cultural settings. The components of L-SES might vary depending on the perception and role of culture in signifying the self-efficacy and how educational system integrated those components into the nursing curricula. Further longitudinal-observation mixed methods studied needed to explore how clinical performance of nursing students could be developed across academic levels and factors associated with improvements.

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Conflict of interests

There are no conflicts of interest in this study found by the author.

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