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Academic motivation and self-directed learning readiness of nursing students during the COVID-19 pandemic in three countries: A cross-sectional study

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Abstract

Background: It is crucial to evaluate student academic motivation and self-directed learning (SDL) readiness while teaching online or flexibly. During the coronavirus disease 2019 pandemic, there were few investigations on the link between academic motivation and SDL readiness.

Aim: This study investigated the connection between academic motivation and SDL readiness and the three academic motivation domains' predictive features.

Methods: This cross-sectional study used convenience sampling to recruit 1187 nursing students from four nursing colleges in three countries. We utilized the Academic Motivation Scale College Version and Self-directed Learning Readiness Scale for Nurse Education to collect data. Descriptive and inferential statistics were employed to analyze the data.

Results: Extrinsic motivation received the highest mean. Most nursing students exhibited SDL readiness, whereas "desire for learning" was rated the highest dimension of SDL readiness. We found significant differences in nursing students' intrinsic and extrinsic motivation and amotivation between the three countries. Finally, country, gender, and intrinsic motivation were significant predictors of the nursing students' SDL readiness.

Conclusion: Among Filipino, Saudi, and Thai nursing students, their SDL readiness is influenced by the intrinsic motivation domain. Therefore, nursing students with higher levels of intrinsic motivation are proactive learners for SDL.

KEYWORDS
academic motivation, COVID-19, extrinsic motivation, intrinsic motivation, nursing students, self-directed learning readiness

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1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic's severe impact, especially on the education sector, cannot be overlooked. As a result, people's movements were restricted, and public gatherings such as schools were forced to switch to an online learning mode to stop the spread of the virus. While online learning is not a new method of education, it appears to be the panacea for teaching and learning during the pandemic.[1] During the COVID-19 pandemic, self-directed learning (SDL) proved to be an essential teaching and learning approach.[2] The concept of SDL was popularized by Malcom Knowles[3] to represent the need for students to have autonomy over their learning process considering changing demands in their learning setting.

The successful integration of SDL into the curriculum necessitates preparing both students and staff to support this form of learning.[4,5] The ability to think, self-management, and self-control are the three elements of preparation for SDL.[6,7] The association between academic motivation and SDL has been explored in the literature, and research has found that the two concepts are interrelated.[8-14] Academic motivation is described as a learner's inherent and persistent desire to explore new ideas that will benefit them.[15] Therefore, the teachers' and learners' understanding of the three domains of academic motivation (intrinsic motivation, extrinsic motivation, and amotivation) has been shown to improve students' SDL.[8-14]

The current study's four nursing colleges in three countries, accept students based on strict requirements. These standards are in accordance with their respective countries' current regulations and are adopted by these colleges. Applicants must complete an entrance test, have high grades in senior high school, and pass an interview to be eligible for entry to the participating colleges. The academic motivation and SDL of nursing students may be influenced by these parameters. On the other hand, these nursing colleges observed that as nursing students progressed to higher levels, the number of students enrolled fell regardless of whether or not there was a COVID-19 pandemic.

Previously reported research on SDL stated that intrinsic motivation and SDL have a major positive impact on student success.[10] SDL helps motivate, excite, and empower students, and provide a sense of intent and connectedness.[16] Furthermore, a significant positive association exists between intrinsic motivation and SDL on student performance.[9,10]

1.1 | Literature review

Academic motivation in nursing students has been explored in many publications, and it has been revealed that academic motivation is the most integral element in improving their SDL.[17-19] Academic motivation among nursing students is a multidimensional concept shaped by several cultural, family, social, educational, and professional influences.[20] Academic success, increased learning performance, creativity, academic satisfaction, anxiety reduction, continuing

schooling, and qualified nurse preparation are all factors of academic motivation.[20] A correlation between academic motivation and SDL has been discovered in many experiments, with research results indicating a link between the two.[8-14] Although academic motivation is an important factor influencing SDL,[15,21] reported studies to determine the relationship between academic motivation and SDL remain understudied, particularly among nursing students.

The present study examines academic motivation using Ryan and Deci's[22] self-determination theory (SDT) as the lens. The theory's three domains of motivation, namely intrinsic and extrinsic motivation, and amotivation, represent varying degrees of self-determination.[22] Intrinsic motivation is the inclination to engage in activities because they are fun and pleasant. In contrast, extrinsic motivation is the propensity to engage in tasks because of unrelated reasons such as anticipated compensation or penalty.[19,22] Amotivation is characterized by not acting at all or acting without intent due to feeling of incompetence, not expecting the desired outcome, or devaluing an activity.[22]

There is a wealth of information available regarding nursing students' readiness for SDL.[4,5] Nursing students from Saudi Arabia,[4,23] China,[5] and Thailand[24,25] reported higher scores in their SDL. Prior research on SDL demonstrated that Thai nursing students showed a high level of readiness for SDL, particularly openness to new learning experiences and self-concept as a student.[25] Additionally, SDL readiness was high among Saudi[4] and Filipino[26] nursing students, but no link was found between SDL and learning styles.

Currently, there is a lack of studies on the relationship between academic motivation and SDL readiness from a multi-country and Asian perspective. Moreover, exploring these two concepts simultaneously has received limited coverage, particularly during the COVID-19 pandemic. Hence, this study investigated the connection between academic motivation and SDL readiness among nursing students. We also hypothesize the predictive features of demographic variables and the three academic motivation domains to SDL. The findings of our study would fill a gap in the literature on nursing students' academic motivation and SDL readiness during an ongoing pandemic.

2 | METHODS

2.1 | Research design

A descriptive, cross-sectional study design was used to evaluate academic motivation as a predictor towards SDL readiness in the face of the COVID-19 pandemic among nursing students across three countries.

2.2 | Setting and participants

Three countries were involved in our research study. This included Saudi Arabia, the Philippines, and Thailand. Two nursing colleges from the Philippines and one each from Saudi Arabia and Thailand were selected. State-run universities managed all these colleges. The two universities

from the Philippines are located in Manila City and Bicol region, respectively. The university included from Saudi Arabia is in the north-western region, while the university from Thailand is located in Bangkok City. The nursing programs in the included universities in the Philippines and Thailand are four-year programs, while the nursing program in the Saudi Arabian university has 5 years.

After obtaining ethical approval from all participating nursing institutions, online survey questionnaires were sent via institutional email and social media platforms (e.g., WhatsApp and Messenger) that were utilized for communication during the online learning class mode.

Using census or total enumeration sampling, we determined that a total of 1585 nursing students had met the inclusion criteria from the study settings (Philippines [N = 783], Saudi Arabia [N = 579], and Thailand [N = 223]) and were therefore considered as the study population. All students enrolled during the academic year 2020–2021 in these colleges were eligible to participate. The participants in this study were also chosen based on the following additional eligibility criteria: enrolled nursing students from the first year to the fourth year from the Philippines and Thailand, and enrolled nursing students from the second year to the fourth year from Saudi Arabia. In Saudi Arabia, the formal classification as a nursing student starts during the second year, whereas the fifth year is purely clinical and internship hospital duties with no didactic classroom learning; therefore, they were excluded. Using the study population, the sample size was estimated using an online sample size calculator (http://www.raosoft.com/samplesize.html). The calculation yielded a required sample size of 310 nursing students, 5% margin of error, and 95% confidence level. A total of 1435 survey forms were received from the three study settings out of 1585 recruited students. After proper evaluation, 1187 fully completed, error-free online forms were retrieved.

2.3 | Ethical considerations

All participating institutions approved this study. The study was granted ethical approval in the three countries (Saudi Arabia = H-2020-199, Philippines = UdM-ERC-2020-002, and Thailand = 602/2564). Due to the COVID-19 restrictions on face-to-face contact, data collection was done electronically using Google survey forms. The directions for participants of the study and consent declaration form were prominently shown at the beginning of the forms. Participants' consent to participate is implied if they fill out and return the online survey form. We ensured that all protocols pertaining to this investigation were compliant with the 2013 revision of the Helsinki Declaration. Since our participants were students, we followed the ethical guidelines established by the relevant national and institutional human experimentation committees in each participating country.

2.4 | Instruments

We used two psychometrically validated instruments to determine the connection between academic motivation and the SDL readiness of

nursing students. All instruments were permitted by their original authors for their usage in this study to be adapted and subsequently translated to Arabic and Thai. Since Filipino students are fluent in English, translating the instrument to their native language was unnecessary.

The online Google form has two parts. First, the demographic profiles, such as country of residence, gender, year level, religion, head of the family's highest educational level and occupation, access to educational and technological resources for the online class. The second part comprised the Academic Motivation Scale College Version (AMS-C 28)[19,27] and Self-directed Learning Readiness Scale for Nurse Education (SDLRSNE)[6,7] questionnaires.

The AMS-C 28[19,27] is a 28-item scale that assesses intrinsic motivation (knowledge, accomplishment, and stimulation), extrinsic motivation (external, introjected, and defined regulation), and amotivation. A 7-point Likert scale, varying from 1 (does not correspond at all) to 7 (corresponds exactly) is used to rate the AMS-C 28. With a Cronbach's alpha value of 0.81, it has an acceptable level of accuracy. Scores were obtained by calculating the mean scores for each subscale, with a possible range of 1–7. Higher scores indicated higher levels of intrinsic motivation, extrinsic motivation, and amotivation.

The SDLRSNE[6,7] was designed primarily to help nurse educators in assessing student learning needs for the educator to incorporate instructional techniques that would best suit them. The 40 items on the SDLRSNE were classified into three domains with their corresponding Cronbach's alpha score: self-management (13 items, α score = 0.924), passion for learning (12 items, α score = 0.857), and self-control (15 items, α score = 0.830). The scale is scored on a 5-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree). Mean scores were computed for the three subscales with higher mean scores indicating higher levels of self-management, passion for learning, and self-control. An overall score was computed for the SDLRSNE ranging from 40 to 200. Total scores higher than 150 signify readiness for SDL, whereas total scores below 150 indicate being not ready for SDL.[7]

We implemented a rigorous approach of translating and adapting the two instruments' original versions[28] in Saudi Arabia and Thailand. Three language experts associated with the study setting translated the instruments from English to Arabic and Thai. A forward-backward translation ensured the reliability of the instrument.[28] Three expert researchers from the study settings nursing colleges who were fluent in Arabic and English and Thai and English, respectively, further validated the instruments. The translated version of the instruments was pilot tested with a small portion of the sample (Saudi Arabia = 60 students, Thailand = 41 students) to tease out mistakes and inconsistencies. Out of these, 49 (Saudi Arabia) and 30 (Thailand) usable survey instruments were retrieved. The Cronbach's α score for the two instruments was 0.89 (AMS-C 28) and 0.82 (SDLRSNE) for Saudi Arabia, and 0.94 (AMS-C 28) and 0.92 (SDLRSNE) for Thailand, respectively; showing high reliability.[29]

2.5 | Data collection

We used a Google form to gather data from December 20, 2020, to June 18, 2021, since face-to-face contact is not allowed in the study settings as

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part of the COVID-19 policy. Personal details were kept anonymously throughout the data collection process. Their email addresses on file were used to submit the Google forms. To confirm that the forms have been received correctly, follow-up alerts were sent to them through their official class WhatsApp or Messenger group chat and mobile messaging. The Google Drive document was encrypted with a password that could be accessed by just one researcher-author from the study setting to protect the obtained data.

2.6 | Statistical analysis

For the statistical analyses of our research, we used the statistical package for social sciences (SPSS version 27). The socio-demographic profile of the participants was illustrated using descriptive statistics. Means, standard deviations, and ranges were reported for academic motivation and SDL readiness. Independent samples t-test and one-way analysis (ANOVA) of variance were conducted to examine the differences on academic motivation between the students' demographic variables, as appropriate. Tukey HSD test was employed if statistical significance was revealed by the ANOVA. A binary logistic regression was carried out to examine the predictors of the students' SDL readiness. The dependent variable was the dichotomized total scores in the SDL readiness (score >150 = ready for SDL, score ≤150 = not ready for SDL). The demographic variables and the three dimensions of academic motivations (intrinsic motivation, extrinsic motivation, and amotivation) were entered as predictor variables. Nominal and ordinal data were dummy-coded before entering them to the regression model. To be considered significant, the p value must be below .05.

3 | RESULTS

3.1 | Demographic characteristics of the participants

A total of 1,187 completed surveys forms were included in the analyses (response rate = 82.71%). The samples were from three countries, with 46.9% of the sample were from the Philippines, 37.0% were from Saudi Arabia, and 16.1% were from Thailand. Most of the participants were females (61.8%). The participants were fairly distributed across the different levels of the BSN programs, with sophomore students contributing the largest number of samples (31.6%), while the lowest proportion was recorded among senior nursing students (11.5%). The participants identified themselves as either Muslim (37.7%), or Roman Catholic (40.7%), or Buddhist (16.1%), or Protestant/Born Again Christian (2.9%), or as others (2.5%). Nearly half of the participants had high access (48.4%) to educational and technological resources for an online class, while 43.3% and 8.3% had reported medium and low access, respectively. Nearly a third of the participants reported baccalaureate degree (31.7%) as the highest

TABLE 1 Demographic characteristics of the participants (n = 1187)

Variable	n	%
Country		
Philippines	557	46.9
Saudi Arabia	439	37.0
Thailand	191	16.1
Gender		
Male	453	38.2
Female	734	61.8
Year level		
1st year	308	25.9
2nd year	375	31.6
3rd year	367	30.9
4th year	137	11.5
Access to educational and technological resources for online class		
High access	574	48.4
Medium access	514	43.3
Low access	99	8.3
Religion		
Islam	448	37.7
Roman Catholic	483	40.7
Buddhism	191	16.1
Protestant/Born Again	35	2.9
Others	30	2.5
Highest level of education of the head of the family		
Graduate program	193	16.3
Baccalaureate	376	31.7
Intermediate/Diploma	113	9.5
High School/Secondary	303	25.5
Primary	159	13.4
Illiterate	43	3.6
Occupation of the head of the family		
Professionals	481	40.5
Nonprofessional	393	33.1
Unemployed	313	26.4

educational qualification of their head of the family, while very few them had illiterate as head of their family (3.6%). In terms of the occupation of the head of the family, 40.5% were professionals, 33.1% were nonprofessionals, and 26.4% were unemployed (Table 1).

TABLE 2 Results of the descriptive analyses on the study variables (n = 1187)

Variable	Min	Max	Mean	SD
Intrinsic motivation	1.00	7.00	5.43	1.35
To know	1.00	7.00	5.76	1.41
Toward accomplishment	1.00	7.00	5.38	1.43
To experience stimulation	1.00	7.00	5.15	1.47
Extrinsic motivation	1.00	7.00	5.62	1.40
Identified	1.00	7.00	5.87	1.44
Introjected	1.00	7.00	5.33	1.51
External regulation	1.00	7.00	5.66	1.53
Amotivation	1.00	7.00	2.80	1.87
Overall self-directed learning readiness	40.00	200.00	158.81	23.02
Self-management	1.00	5.00	3.85	0.63
Desire for learning	1.00	5.00	4.08	0.67
Self-control	1.00	5.00	3.99	0.57

Abbreviation: SD, standard deviation.

3.2 | Academic motivation and self-directed learning readiness

The summary of the results of the descriptive analyses on the nursing students' academic motivation and SDL readiness is reflected in Table 2. Among the three main dimensions of academic motivation, extrinsic motivation received the highest mean of 5.62 (standard deviation [SD] = 1.40), followed by intrinsic motivation 5.43 (SD = 1.35). Amotivation was rated as the lowest among the three main dimensions (M = 2.80, SD = 1.87). For intrinsic motivation, "to know" received the highest mean (M = 5.76, SD = 1.41), while "to experience stimulation" received the lowest mean (M = 5.15, SD = 1.47). The subscale "identified" (M = 5.87, SD = 1.44) was rated as the highest among the three subscales of extrinsic motivation, while "introjected" received the lowest mean (M = 5.33, SD = 1.51).

The overall mean of the nursing students on the SDLRSNE was 158.81 (SD = 23.02), from a possible range of 40–200. Most of the students exhibited readiness (n = 834, 70.3%) for SDL, while 29.7% (n = 353) were classified as not ready. "Desire for learning" (M = 4.08, SD = 0.67) was rated as the highest dimension of the SDL readiness, while "self-management" was rated as the lowest (M = 3.85, SD = 0.63) (Table 2).

3.3 | Differences on the students' academic motivation

The results of the bivariate analyses examining the differences on the students' academic motivation in terms of their demographic profiles are summarized in Table 3. Significant differences were found on the nursing students' intrinsic motivation (F = 13.03,

p < .001), extrinsic motivation (F = 20.25, p < .001), and amotivation (F = 191.46, p < .001) between nursing students from the three countries. The Tukey HSD test revealed that nursing students from Saudi Arabia had significantly poorer intrinsic (p < .001) and extrinsic (p < .001) motivation but higher amotivation (p < .001) compared with students from the Philippines and Thailand. Female nursing students had significantly higher intrinsic (p < .001) and extrinsic (p < .001) motivation than male nursing students. Significant differences on the three main subscales were also revealed between year levels. The post hoc analyses showed that first-year nursing students had significantly higher mean scores on intrinsic (p = .016) and extrinsic (p = .003) motivation than nursing students in the third year. First-year and fourth-year nursing students had significantly higher scores on amotivation compared with second- and third-year. Moreover, there was a significant difference on amotivation between nursing students with different access educational and technological resources for online class (F = 8.74, p < .001); wherein nursing students with medium access had significantly lower scores compared with nursing students who had low (p = .002) and high (p = .003) access.

Furthermore, there were significant differences on intrinsic (F = 6.89, p < .001) and extrinsic (F = 11.15, p < .001) motivation, and amotivation (F = 97.10, p < .001) between nursing students with different religious beliefs. The post hoc analyses indicated that nursing students who identified as Protestant/Born Again Christian had significantly higher scores than students who were Muslims, Roman Catholics, and others in intrinsic and extrinsic motivation and in amotivation. There was also a significant difference on amotivation when nursing students were grouped according to the highest educational qualification of the head of their family (F = 9.17, p < .001). The Tukey HSD test showed that those with head of their family who finished a graduate program had significantly lower scores than those students who had a head of their family who were baccalaureate, high school, or primary school graduates, as well as those who are illiterate. Finally, significant differences on intrinsic motivation (F = 3.71, p = .025) and amotivation (F = 5.89, p = .003) were reported when nursing students were grouped according to the occupation of their head of their family. Students whose head of their family were professionals had significantly higher scores on intrinsic motivation and amotivation than those with unemployed head of the family.

3.4 | Predictors of the students' self-directed learning readiness

A binary logistic regression was performed to examine the predictors of the nursing students' SDL readiness. The regression model was statistically significant, $\chi^2(8) = 34.95$, p < .001. The model explained 14.4% (Nagelkerke R^2) of the variance in SDL readiness and correctly classified 70.4% of cases. As shown in Table 4, country, gender, and intrinsic motivation were significant predictors of the nursing

TABLE 3 Results of the tests of differences on the academic motivation between demographic variables (n = 1187)

Demographics	Intrinsic motivation				Extrinsic motivation				Amotivation			
	Mean	SD	Statistical test	p	Mean	SD	Statistical test	p	Mean	SD	Statistical test	p
Country												
Philippines	5.38	1.24	F = 13.03	<.001***	5.76	1.17	F = 20.25	<.001***	2.64	1.78	F = 191.46	<.001***
Saudi Arabia	5.29	1.52			5.30	1.71			4.87	1.84		
Thailand	5.87	1.15			5.95	0.98			2.80	1.87		
Gender												
Male	5.23	1.50	t = −3.82	<.001***	5.31	1.67	t = −5.68	<.001***	2.72	1.81	t = −1.23	.218
Female	5.55	1.23			5.81	1.15			2.85	1.91		
Year level												
1st year	5.62	1.25	F = 3.60	.013*	5.82	1.20	F = 4.76	.003**	3.06	1.99	F = 13.71	<.001***
2nd year	5.36	1.28			5.58	1.37			2.65	1.78		
3rd year	5.31	1.40			5.44	1.55			2.47	1.60		
4th year	5.53	1.56			5.78	1.39			3.52	2.24		
Access to educational and technological resources for online class												
High access	5.50	1.39	F = 2.42	.089	5.65	1.38	F = 2.22	.109	2.94	1.98	F = 8.74	<.001***
Medium access	5.39	1.27			5.64	1.35			2.56	1.71		
Low access	5.21	1.45			5.34	1.67			3.26	1.95		
Religion												
Islam	5.29	1.52	F = 6.89	<.001***	5.30	1.71	F = 11.15	<.001***	2.66	1.78	F = 97.10	<.001***
Roman Catholic	5.40	1.25			5.79	1.17			2.17	1.40		
Buddhism	5.87	1.15			5.95	0.98			4.87	1.84		
Protestant/Born Again	5.43	1.24			5.82	1.20			2.29	1.56		
Others	5.13	1.01			5.38	1.04			2.63	1.33		
Highest level of education of the head of the family												
Graduate program	5.37	1.37	F = 0.83	.527	5.79	1.23	F = 1.75	.120	2.22	1.46	F = 9.17	<.001***
Baccalaureate	5.52	1.38			5.66	1.42			3.05	2.06		
Intermediate/ Diploma	5.47	1.23			5.73	1.30			2.27	1.55		
High School/ Secondary	5.32	1.36			5.55	1.34			2.79	1.77		
Primary	5.46	1.36			5.45	1.57			3.28	2.07		
Illiterate	5.40	1.23			5.33	1.70			2.90	1.67		
Occupation of the head of the family												
Professionals	5.53	1.39	F = 3.71	.025*	5.68	1.39	F = 1.28	.278	3.01	2.05	F = 5.89	.003**
Nonprofessional	5.42	1.33			5.63	1.42			2.75	1.83		
Unemployed	5.27	1.30			5.52	1.38			2.55	1.59		

Abbreviation: SD, standard deviation.

*Significant at .05 level.

**Significant at .01 level.

***Significant at .001 level.

TABLE 4 Result of the binary logistic regression on the SDL readiness (n = 1187)

Predictor variables	β	SE	Wald	p	Exp(β)	95% CI for exp(β) Lower	Upper
Country (Ref.: Saudi Arabia)							
Philippines	2.20	1.11	3.95	.047*	8.98	1.03	78.37
Thailand	0.93	0.28	11.22	.001**	2.53	1.47	4.34
Gender (Ref.: Female)	−0.39	0.19	4.06	.044*	0.68	0.47	0.99
Year level (Ref.: 1st year)							
2nd year	0.04	0.20	0.03	.855	1.04	0.70	1.53
3rd year	−0.27	0.22	1.60	.206	0.76	0.50	1.16
4th year	0.00	0.26	0.00	.993	1.00	0.60	1.68
Access to educational and technological resources for online class (Ref.: High access)							
Medium access	0.17	0.17	1.03	.310	1.19	0.85	1.67
Low access	0.02	0.29	0.00	.950	1.02	0.58	1.79
Religion (Ref.: Islam)							
Roman	−1.22	1.10	1.24	.266	0.30	0.04	2.53
Buddhism	−1.26	1.17	1.16	.282	0.29	0.03	2.81
Others	−1.98	1.15	2.94	.086	0.14	0.01	1.33
Highest level of education of the head of the family (Ref.: Illiterate)							
Graduate program	−0.50	0.45	1.25	.263	0.61	0.25	1.45
Baccalaureate	−0.26	0.39	0.45	.502	0.77	0.36	1.66
Intermediate/Diploma	−0.23	0.42	0.31	.580	0.79	0.35	1.81
High School/Secondary	−0.34	0.39	0.77	.381	0.71	0.34	1.52
Primary	−0.48	0.40	1.47	.226	0.62	0.28	1.35
Occupation of the head of the family (Ref.: Unemployed)							
Professional	0.34	0.19	3.01	.083	1.40	0.96	2.05
Nonprofessional	0.16	0.19	0.68	.408	1.17	0.81	1.70
Academic motivation							
Intrinsic motivation	0.36	0.08	18.33	<.001***	1.43	1.22	1.69
Extrinsic motivation	0.03	0.08	0.11	.735	1.03	0.88	1.21
Amotivation	0.03	0.05	0.34	.558	1.03	0.94	1.12

Abbreviation: CI, confidence interval; SDL, self-directed learning; SE, standard error.

*Significant at .05.

**Significant at .01.

***Significant at .001.

students' SDL readiness. Nursing students from the Philippines and Thailand were 8.98 (p = .047, 95% confidence interval [CI] = 1.03–78.37) and 2.53 (p = .001, 95% CI = 1.47–4.34) times more likely to be ready for SDL than nursing students from Saudi Arabia. Male nursing students were 0.68 (p = .044, 95% CI = 0.47–0.99) times less likely than female nursing students to be ready for SDL. Higher intrinsic motivation was associated with an increased likelihood of being ready for SDL (exp[β] = 1.43, p < .001, 95% CI = 1.22–1.69).

4 | DISCUSSION

Our findings demonstrate Filipino and Thai nursing students are nine times more likely to be ready for SDL which is consistent with previous research on SDL readiness where Thai[24,25] nursing students showed high readiness score on SDL. Specifically, in the categories of openness to learning opportunities, self-concept as an effective learner, initiative, independence in learning, informed acceptance of responsibility for one's learning, creativity, and the ability to use basic study and

problem-solving skills,[30,31] Thai nursing students exemplified high readiness towards SDL.[24,25] While in the Philippines, Manarang and Cuevas[26] found no connection between SDL readiness and nursing students' learning styles in a report. Furthermore, the students who demonstrated the divergent learning style were more independent learners and SDL ready.[26] On the other hand, Saudi Arabian nursing students prefer the converger learning style, which is characterized by abstract conceptualization and active exploration abilities, as well as diverger, assimilator, and accommodator learning styles.[4] Furthermore, Saudi nursing students believe that an efficient learning environment, which is mediated by strong adaptation to SDL, is beneficial to academic achievement.[32] When traditional and bridging Saudi nursing students' SDL readiness were compared, both had low SDL readiness scores.[23] During the COVID-19 pandemic, nurse educators used an online learning mode to allow students to complete most of their learning activities at home.[33] However, some students either have restricted internet access or connectivity issues, and this discrepancy grows globally, especially among people of different socioeconomic backgrounds.[34]

The recovery of nursing students from the effects of the COVID-19 on their academic environments may be considered a posttrauma growth (PTG), which refers to an individual's progression after a stressful event. According to one study on nursing students' motivation and PTG, inherently motivated students had higher PTG, and nursing students with innate academic motivation also had higher PTG.[35] Among the three domains of academic motivation in our study, the amotivation domain had the lowest mean. This might be a favorable outcome, since amotivated students have a detrimental impact on their peers owing to their lack of enthusiasm and effort.[36] Furthermore, Rose[37] asserted that several personal and socioeconomic issues influenced nursing students' success, so it is critical to recognize the factors that drive students to complete their nursing degrees.

When it comes to SDL readiness, the majority of our participants indicated that they were "ready," which aligns with contemporary perspectives on SDL.[38] Comparatively, problem-based learning (PBL) is one of the most important factors that several researchers have found to promote SDL readiness.[23,39] PBL was identified as the primary explanation why Saudi nursing students are SDL ready in the study of Alharbi.[23] Moreover, Choi et al.[39] substantiated this assertion by stating that PBL could be used to determine readiness for SDL. This is in accordance with current theories that stress the significance of SDL. The participants' reactions to being amotivated or inspired intrinsically or extrinsically differ greatly. This may be attributed to their own values or expectations from culture and others.[40]

In terms of gender, our study discovered that female nursing students are more SDL ready compared with their male counterparts. This is similar to the report of Cadorin et al.[41] Female nursing students scored higher in the posttest in an analysis comparing academic motivation and pre and post SDL after tutorial sessions,[41] while there was no gender association among nursing students in Turkey,[42] Iran[20,43] and Korea.[35] Relatively, the result in our study proved that female nursing students were intrinsically motivated compared to male participants. A study among Swedish nursing students also found similar

results where women had greater personal intrinsic motivation than men.[44]

The findings of our study found out that Protestant nursing students scored high in the three domains of academic motivation. Few published studies directly connect faith, academic motivation, and learning. However, according to one related literature that addressed educational attainment among various faiths, Islamic scholars claim that intellectual abilities were lost because of decades of social and political complication.[45] Catholics placed a greater focus on female education than Protestants, whereas Thai Buddhist monastic schools served the needs of male education.[45]

Our study revealed that educational attainment and occupation of head of the family influence academic motivation of nursing students. Conversely, family factors such as a parent's career or degree of schooling had little impact on the academic accomplishments of students in Canary Islands private and public schools.[46] McLaughlin et al.[47] reported that family and significant others encouraged their youngsters to seek a profession in nursing and were influential in inspiring them to become nurses. Furthermore, maternal and peer influences played a critical part in nursing students' career choices.[48]

Our findings showed that first-year nursing students are more intrinsically and extrinsically motivated than third-year students. They are more amotivated than graduating students (fourth year) and second- and third-year students. This demonstrates that first-year nursing students are composed of intrinsically and extrinsically motivated individuals. Contrarily, among first-year college students, intrinsic motivation tends to decline over time, whereas extrinsic motivation increases, affecting students' academic outcomes.[49] Accordingly, it is indicated that extrinsic motivation is much greater than intrinsic motivation among nursing students.[8] Similarly, a students' decision to enroll in nursing program is influenced by an extrinsic motivation.[35]

This study showed that nursing students have high access to educational and technological resources for online class. Students may use technology differently depending on its usability, importance, and utility. The National League for Nursing claims that 82.9% of nursing students use technology to aid in their learning.[50] Nursing students believed that using technology improved their learning and performance.[51] Even though nursing students have access to technologies, their ability to learn is not assured by its use. While nurse educators' usage of technology in the classroom influences how inspired their students are and is affected by their expectations of the course's goals, learning results, and desire to learn.[52] The need to examine nursing students' ability to learn independently was highlighted by a question regarding whether they are extremely enthusiastic about learning nursing topics before and after the COVID-19 pandemic ends. Their need to learn through technology was imposed rather than chosen because of the effect of COVID-19 on their schooling. Wilkinson et al.[53] discovered that nursing students were not ready for technology-enhanced learning (60%) when they first entered the nursing school, and their unreadiness remained the same over time. The nursing student's knowledge of

online learning exhibited varying trajectories over time. Relatively, access to technologies and availability of internet connection was found significant challenges.[52,53]

Our findings indicate that there is a positive correlation between SDL and academic motivation, indicating that academic motivation promotes SDL. Our findings corroborate the report of Sajadi et al.,[43] who reported that motivated students are more willing to engage in SDL, which results in more independent and focused learning. Consequently, as the teaching-learning process progresses, students become increasingly self-reliant. Motivation is the most important aspect of success, and one of the traits of self-directed learners is their eagerness to learn. When their needs are fulfilled, self-directed learners are highly motivated to study. Kamarruddin et al.[12] asserted that in a regression analysis of Malaysian nursing students, SDL and a desire to learn were found to be predictive. Nursing students who are strongly driven to learn are more likely to indulge in self-directed study.[8]

Our study revealed a strong correlation between intrinsic motivation and readiness for SDL. According to a previous study, students who prioritize their own motivation to study and learn have a strong desire to learn at their own pace.[54] Furthermore, it was discovered that a student's intrinsic motivation was a major factor in deciding whether they achieved a passing or failing grade.[10] Additionally, it was demonstrated that extrinsic motivational factors impede SDL, which is promoted by intrinsic motivational factors.[10] Bodkyn and Stevens[10] argued that the teacher's competence is an important factor in sustaining the motivation that influences SDL. Pedagogical approaches, for example, can have an impact on student motivation, which is something that nurse educators must keep in mind when planning their lessons.[55] Akbar et al.[9] in their analysis of Southeast Asian students, where two of the three countries in our sample are geographically situated, they identified three prerequisites for a successful SDL: learner characteristics (whether they have previous SDL knowledge), the environment in which students may develop their SDL ability, and the instructor-learner relationship.

Since learners' engagement and interest in learning would be a necessary trait while managing motivation, student involvement is one of the most influential motivating forces in an organized online SDL.[14] Self-directed teaching, intrinsic encouragement, and academic achievement are all closely related among nursing students[10] Correspondingly, it is also acknowledged that not all students or learners will ever develop into self-directed learners.[56]

5 | IMPLICATIONS TO NURSING PRACTICE

Educators must be aware of the pressing needs of nursing students to understand the present plight of students who are struggling with their learning demands. Consequently, they are dealing with the detrimental effects of the COVID-19 pandemic on their physical, psychosocial, and spiritual well-being. Therefore, a detailed and in-depth analysis is required, along with the use of objective metrics to determine their academic motivation and SDL and its influence on nursing students' overall well-being.

The results of our study shed light on the current state of nursing students' academic motivation and SDL. Based on these findings, educators, administrators, and university management should evaluate the learning needs of students while in the COVID-19 pandemic. Furthermore, given the abrupt transition in teaching and learning modes, academic requirements should be assessed in light of students' ability to study concerning sufficient resources in the wake of the pandemic. Finally, our findings may help establish helpful in-campus or online student programs such as student collaborative core groups or online student group chats that will promote motivation and SDL among nursing students. Thus, holistically preparing them for actual clinical placement in various nursing clinical settings.

6 | LIMITATIONS AND RECOMMENDATIONS

The study was only conducted in selected universities in each of the three countries, which might not represent the other nursing schools in those countries. Moreover, the sampling technique that was used in the study was convenience sampling. These limitations have implications on the generalizability of the findings among the nursing student's population in the three countries; thus, careful consideration must be observed when interpreting our results. Nonetheless, our study is the largest and first to investigate the academic motivation and SDL readiness of nursing students amidst the COVID-19 pandemic. Other variables, in addition to those used in the study, maybe predictors of SDL readiness and must be investigated in future studies. Finally, the variables were measured using self-report surveys, which may have introduced some degree of social desirability bias.

As indicated by the results of our study, which included a diverse group of nursing students from three countries, we propose that a similar study be undertaken in other nursing schools and countries to determine the correlates of SDL among nursing students, especially during the COVID-19 pandemic.

7 | CONCLUSION

The regression model in our study suggests that it was statistically meaningful. The model discriminated between SDL readiness as influenced by three domains of academic motivation (intrinsic, extrinsic, and amotivation). The profile variables such as country of residence, gender, and intrinsic motivation were all significant predictors of nursing students' readiness for SDL. Furthermore, students from the Philippines and Thailand were almost nine and three times more likely to be ready for SDL than Saudi nursing students. Accordingly, male nursing students are less likely than female nursing students to be ready for SDL. Being well prepared or proactive for SDL was linked to higher levels of intrinsic motivation.

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