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Original Research Article

Nursing Students' Determinants of Intentions in Volunteering to Care COVID-19 Patients

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Abstract: ***Purpose*:** This study explored nursing students' knowledge and beliefs variables (attitudes, subjective norms, and perceived behavior control) as determinants of intention in volunteering to care for COVID-19 patients across multiple demographic groups (gender, academic level, and volunteering experience). ***Methods*:** This mediation Path analysis and multiple-groups Path analysis is part of a larger exploratory cross-sectional study that we conducted in July 2020. We developed and administered an online Likert-scale questionnaire to 437 nursing students. ***Results*:** Knowledge negatively predicted students' intentions to care for COVID-19 patients ($r = -.258$, $p \leq .01$), with perceived behavioral control as a mediator. Subjective norms positively predicted intention among males, seniors, and students with previous volunteer experience. Despite a significant relationship between knowledge and the belief variables, subjective norms had insignificant effect on the intentions of females, juniors, and those without volunteer experience. ***Conclusion*:** Building confidence and self-efficacy are essential in preparing nursing students for crises like the COVID-19 pandemic. Revising healthcare policies to create opportunities for students to volunteer may help support the healthcare system and reduce the burden on nurses in crisis. Additionally, updating curriculums to build skills, confidence and promote opportunities for volunteering may help prepare nursing students to effectively assist in disasters.

Keywords: Nursing, education, culture, COVID-19, volunteers.

INTRODUCTION

The pandemic has challenged healthcare educational systems, including nursing education, forcing educational institutions to implement alternatives to safeguard students and compensate for the rebarbative disruption the pandemic caused. In many instances, practicums were suspended, and face-to-face learning was replaced with remote learning [1]. In nursing education, the International Council of Nurses [2] reported in April 2021 that the pandemic had disrupted education. These disruptions may ultimately cause delays in graduation and potentially contribute to nursing shortages in the near future [2].

The increasing demand for healthcare workers caused by the pandemic has contributed to the worldwide shortage of nurses. Moreover, the burden caused by the pandemic has increased the rate of nurses leaving the profession [3]. Recent literature has reported higher rates of turnover or the intention for turnover among healthcare workers during the pandemic [4, 5]. Because of the ongoing impact of the COVID-19 pandemic on an already strained system, the ICN[2] has projected the shortage of nurses to be more than 10,000,000 by 2030.

In Oman, nursing students and pre-licensed graduates have been a source of support in the healthcare system to maximize the country's ability to respond to the COVID-19 crisis. The Omani Ministry of Health [6] developed a contingency plan to support the healthcare institutions with the workforce, including recruiting nursing students as volunteers. Omani nursing students and pre-licensed nurses were assigned to COVID-19

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testing centers, call centers, and mass vaccination centers.

Several factors suggest students' willingness to care for patients infected with life-threatening illnesses, e.g., COVID-19. These factors, which include beliefs, knowledge, and volunteer experience, are positively impacting students' intention to care (Lazarus *et al*., 2021; Kimet *et al*., 2022). Nevertheless, fear for personal or family health, lack of cure, and fear of harming patients were the main factors that diminished their willingness to volunteer [7, 8]. Learning the determinants of intention can inform the policy developers and prepare nursing students to better support the health system during disasters.

In July 2020, we collected data for an exploratory cross-sectional study from nursing and allied health sciences students in multiple branches of a governmental college in Oman. The study's primary purpose was to examine healthcare professional students' knowledge, demographics, and belief variables—attitudes, subjective norms, and perceived behavior control (PBC) - regarding their intentions to volunteer to care for COVID-19 patients. One of the findings from the study was that nursing students generally expressed the willingness to volunteer during crisis [9, 10]. Still, the complexity and various consequences of volunteering can affect students' intentions, suggesting that demographic variables play a role in moderating students' intentions to volunteer to care for COVID-19 patients.

Learning about students' beliefs and intentions will encourage the development of strategies to mitigate the impact of the pandemic on education beyond the scope of traditional education. Additionally, it will potentially guide the provision of learning opportunities to mobilize students to respond to health crises across the world. Therefore, this analysis will focus on identifying the determinants of intention among nursing students using mediation analysis. The mediation analysis will help identify the underlying determinants of intention. The analysis will determine where the relationship between outcome intention and observed variables is direct or mediated through one or more intermediate variables. Thus, providing a more comprehensive understanding of the relationships between variables.

Our research questions for this analysis were:

a. What is the effect of knowledge, demographic, and belief variables (attitudes, subjective norms, and PBC) on nursing students' intentions to volunteer to care for patients with COVID-19?
b. Is there a direct and indirect influence of knowledge, mediated by belief variables, on nursing students' intentions to volunteer to care for patients with COVID-19? and
c. Is there a difference in the performance of determinants of intentions across volunteering experience groups (present vs. not present)?

Conceptual Framework

Perhaps the most acknowledged theory for predicting an individual's intention is the theory of planned behavior (TPB) [11]. We adapted the theory. We used the theory to predict nursing students' intentions to care for COVID-19 patients based on the belief variables (attitude, subjective norms, and PBC). First, the students' attitudes reflect their beliefs about COVID-19 and the negative and positive evaluation of those beliefs in volunteering to provide care for patients with COVID-19. Second, subjective norms reflect the students' beliefs about their significant others, indicated by the approval of their peers, family members, and teachers for volunteering to care for COVID-19 patients. Third, PBC or the belief about the ease or difficulty, reflects barriers to students' volunteering to care for patients with COVID-19. We also included students' knowledge and demographics as antecedent beliefs to explain the complex relationships between these variables in predicting students' intentions to volunteer to care for COVID-19 patients.

While exploring the data set in the main study, we noticed that knowledge correlated negatively with intention. Students with higher scores on the knowledge scale had lower intentions to volunteer to care for patients with COVID-19 [10]. These contraindicative results justify the need to examine the direct and indirect impact of the aforementioned variables on intention (irrespective of demographic groups); we labeled this as the "main-path model." We further examined the determinants of intention across multiple volunteering experience, as a malleable variable. We conducted a multiple-group analysis to test group differences with a simultaneous path analysis [12]. Additionally, we employed a path analysis approach to examine direct and indirect effects (mediation effects) of the demographic groups and belief variables on intention.

We examined the group differences according to the following multiple-group path models: "Path Model 1," a comparison path for gender between males and females; "Path Model 2," a comparison path for academic-level groups between senior and junior students; and "Path Model 3," a comparison path between students with and without volunteer experience.

METHODS

Study Design and sample

We performed a mediation path analysis and multiple-groups path analysis of a web-based self-administered questionnaire in July 2020 on Omani nursing students' intention to care for patients with COVID-19. We obtained the data from a larger cross-sectional study [10] on nursing students at a governmental health sciences college in Oman. This

study used a cross-sectional design and adhered to the STROBE guideline for reporting observational studies.

Instruments

We developed instruments using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). We calculated the mean score and the associated standard deviation for each instrument. The internal consistency, Cronbach's alpha, ranged from .63 to .76. The development and validation of the instruments used for this study were described in earlier publications [9, 10]. The questionnaires included the demographic section and the following three instruments:

(a) *The intention tool* is a 4-item instrument measuring the students' conscious plan or decision to exert effort to volunteer to care for patients with COVID-19. Higher scores indicate greater intentions to volunteer to care for COVID-19 patients.

(b) *The Belief variables tool* is a three-subscale instrument that includes: attitude (7–item), subjective norms (11–item), and PBC (8–item). Attitude is the degree to which a student has a positive or negative evaluation of their volunteering to provide direct care for COVID-19 patients. An example of a question used is "*volunteering to care for patients with COVID-19 will make me feel good about myself."* Higher scores indicate greater positive sentiments toward caring for COVID-19 patients. Subjective norms are the students' beliefs about whether their peers, family members, and teachers would approve or disapprove of volunteering to care for patients with COVID-19. Higher scores indicate higher approval from peers, family members, and teachers for volunteering to care for COVID-19 patients. An example of a subjective norms question used is *"my friends will feel anxious about me being infected if I take care for patients with COVID-19."* PBC is the students' perception that caring for patients with COVID-19 is within their control. The variable also reflected the student's experience and anticipated impediments and obstacles. An example of PBC item is *"I am confident that I can care for patients with COVID19."* Higher scores indicate the students felt greater control over their abilities to care for patients with COVID-19.

(c) *Knowledge of COVID-19 tool* has 22 items and measures the students' level of awareness of sources of the disease, transmission, symptoms, prognosis, and treatment according to WHO recommendations. Higher scores indicate a greater awareness of WHO recommendations [9].

Ethical Considerations

The study was approved by the Institutional Review Board (Approval no. REC/OCHS-1x-2xx4) of the authors' college. No identifiable information was collected.

Data Analysis

We used the software SPSS version–22 and AMOS version–23 for data analysis. We executed a bivariate correlations analysis using Pearson's product–moment correlation (r) between continuous variables and point biserial correlations (r_{pb}) between continuous and dichotomous variables. We established multivariate normality of the data based on a skewness less than 2.0 and a kurtosis less than 7.0 [13].

We constructed the main-path model that included all observed study and socio-demographic variables with paths drawn according to the proposed study framework. Then, we evaluated the model fit using a non-significant chi-square statistic (χ^2) or ($\chi^2/df \leq 5$) as a benchmark, Bentler's comparative fit index (CFI≥ .95), the Joreskog–Sorbom goodness-of-fit index (GFI≥ .95), the Steiger–Lind Root Mean–Square Error of Approximation (RMSEA≤ .08), and the Tucker–Lewis–Index (TLI≥ .95). We used the squared multiple correlations (R^2) to estimate the proportion of variance explained by the model. Lastly, we constructed multiple-group analyses to examine the overall model differences and the individual path differences across gender (male vs. female), academic year (junior vs. senior), and volunteer experience (present vs. not present). We used the chi-square difference test in AMOS (χ^2) to compare the specified groups' paths and *p*-values for significant paths.

RESULTS

Participant Characteristics

We included (*N*= 437) nursing students in the analysis after cleaning the data. The majority were females (*n*= 344, 78.7%) and were aged 18–21 years (*n*= 262, 60.0%). Among the participants, 228 (52.2%) students were at the junior level or in their first or second academic years, and 363 (83.1%) had no previous volunteer experience. The mean scores for the instruments were as follows: knowledge (*M*= 3.93, *SD* = .34, range= 2.55 – 4.77), attitude (*M*= 3.30, *SD*= .34, range= 2.43 – 4.71), PBC (*M*= 3.93, *SD* = .55, range= 1.50 – 5.00,), subjective norms (*M*= 2.81, *SD*= .41, range= 1.00 – 4.27), and intention (*M*= 2.55, *SD*= .49, range= 1.50 – 4.25).

Bivariate Correlations

There were significant differences by gender in the levels of knowledge, subjective norms, and intentions. Significant differences by academic year are present in the levels of knowledge, PBC, and intention. Previous volunteer experience also significantly influenced the TPB belief variables.

Higher levels of knowledge about COVID-19 correlated with higher levels of attitudes (r= .262, $p\leq$ .01) and PBC (r= .324, $p\leq$ .01). Conversely, the increase in knowledge correlated negatively with the intention to care for patients with COVID-19 (r= −.258, $p\leq$ .01). Participants with higher attitudes toward caring had higher levels of subjective norms (r= .187, $p\leq$ .01) and PBC (r= .270, $p\leq$ .01). Similar to knowledge, PBC was correlated negatively with intention (r= −.246, $p\leq$ .01).

The Main-Path Model

In addition to the significant correlation between knowledge and intention, the bivariate analysis showed significant positive correlations between knowledge and attitudes, likewise between knowledge and PBC. This suggested that knowledge had direct and indirect effects on intention, mainly from PBC. Thus, guiding us to examine the mediated effect of attitudes, subjective norms, and PBC on the main effect of knowledge on intention through path analysis, adjusting for the effects of gender (male or female), academic level (junior or senior), and volunteer experience (yes or no).

Initially, the main-path model did not fit properly, as suggested by the modification indices and the paths' significance levels. We revised the model (Figure 1) and yielded better goodness of fit indicators, χ^2 (13) = 21.694, p = .060, χ^2/df < 3, GFI= .988, CFI= .971, TLI= .938, RMSEA= .039, 90% CI [.000, .067]. The results of the revised main-path model are presented in Table 1. The variable intention was predicted directly by knowledge (β= -.199, $p\leq$ .001) and indirectly primarily through PBC (β= −.182, p≤ .001) because it was the only mediating factor (Figure 1). The mediation model explained 22% of the variation in intention. The total effect of knowledge on intention was (β= −.257), where the direct effect was (β= -.199), and the indirect effect was (β= −.058.)

Table 1: Correlations between the Study Variables (N = 437)

	Knowledge	Attitude	Subjective norms	Perceived behavioral control	Intention
Gender (male & female)	.109*	.014	−.241**	−.043	−.101*
Current academic year: Junior (1st & 2nd), Senior (3rd & 4th)	.115*	.035	.082	.219**	−.132**
Volunteer experience (yes vs. no)	−.050	−.179**	−.170**	−.216**	−.036
Knowledge		.262**	−.089	.324**	−.258**
Attitude			.187**	.270**	−.032
Subjective norms				.323**	.025
Perceived behavioral control					−.246**

Note. Pearson's product–moment correlation (r) between continuous variables. Point biserial correlations (r_{pb}) between continuous and dichotomous variables.
*$p \leq .05$. **$p \leq .01$.

Path Model 1: Multiple-Group Analysis by Gender (Male vs. Female)

The multiple-group analysis, Path Model 1, of the study's conceptual model between male and female groups, controlling for academic and volunteer experience, is presented in Table 2. The female and male path models differed significantly at the model level, $\chi^2(15) = 36.497$, p= .001. Although there were significant results within each group in the knowledge paths, the only significant path in knowledge between the two groups was the path from knowledge to the subjective norms (p= .019), which was significant only among the female group (β= −0.12, $p\leq$ .05). The two groups also differed significantly in the path between subjective norms and intention (p= .018), which was significant only among males (β= .25, $p\leq$ .01). As a controlled variable, volunteer experience had significant paths with all the belief variables (attitudes, subjective norms, and PBC) in the female group compared to the male group (p= .030, p= .005, and p= .003, respectively). That is, females with previous volunteer experience reported higher scores in attitudes, subjective norms, and PBC than females without volunteer experience.

Table 2: Regression Weights of the Revised Main Path Model of Nursing Students' Intentions to Volunteer to Care for COVID-19 Patients

Path			Unstandardized estimate	*SE*	Critical ratio	Standardized estimate	*p*
Attitude	<---	Knowledge	.263	.044	6.026	.268	.001
PBC	<---	Knowledge	.516	.066	7.772	.321	.001
Intention	<---	Knowledge	−.285	.069	−4.11	−.199	.001
Intention	<---	PBC	−.162	.043	−3.756	−.182	.001
PBC	<---	Academic	.165	.045	3.629	.149	.001
Subjective norms	<---	Gender	−.205	.044	−4.716	−.206	.001
Attitude	<---	Volunteer experience	−.149	.041	−3.64	−.165	.001

Path			Unstandardized estimate	*SE*	Critical ratio	Standardized estimate	*p*
PBC	<---	Volunteer experience	−.281	.064	−4.367	−.19	.001
Subjective norms	<---	Volunteer experience	−.149	.051	−2.911	−.136	.004
Knowledge	<-->	Academic	.02	.008	2.391		.017
Knowledge	<-->	Gender	.016	.007	2.473		.013
Gender	<-->	Volunteer experience	.027	.007	3.576		.001
e2	<-->	e3	.026	.006	4.139		.001
e2	<-->	e4	.028	.008	3.626		.001
e3	<-->	e4	.068	.01	6.723		.001

Note. PBC = perceived behavioral control.
e2, e3, and e4 = error terms (attitude, subjective norms, and perceived behavior control; respectively)

Path Model 2: Multiple-Group Analysis by Academic Year (Junior vs. Senior)

Table 2 represents the multiple-group analysis of the study's conceptual model, Path Model 2, between junior and senior students, controlling for gender and volunteer experience. The path models of the two groups were significantly different at the model level, $\chi^2(15) = 25.686$, $p = .041$. There was a significant difference between the junior and senior models for the path between knowledge and subjective norms ($p = .007$), which was significant only among junior students ($\beta = -.18$, $p \leq .01$). Similarly, the path between PBC and intention was significant only among juniors ($\beta = -.28$, $p \leq .01$), representing a significant difference compared to the senior path model ($p = .048$).

Path Model 3: Multiple-Group Analysis (With vs. Without Volunteer Experience)

The multiple-group analysis of the study's conceptual model between students with and without volunteer experience, controlling for gender and academic level, is presented in Table 2. The analysis results represent a significant difference between the two path models, $\chi^2 (15) = 34.991$, $p = .002$. Although there were significant paths within each group model, none showed a significant difference between the two group models. The only significant differences between the two models were among the paths between gender and belief variables: attitudes ($p = .032$), subjective norms ($\beta = .038$), and PBC ($p = .001$). The path from gender to attitude was significant among students with volunteer experience ($\beta = .21$, $p \leq .05$), the path from gender to subjective norms was significant among students without volunteer experience ($\beta = -.25$, $p \leq .001$), and the path from gender to PBC was significant for both groups, with more weight in those with volunteer experience ($\beta = .25$, $p \leq .05$ vs. $\beta = -.12$, $p \leq .05$).

Table 3: Multiple-Group Analysis of Conceptual Model between Students with and Without Volunteer Experience, Controlled for Gender and Academic Level

Path			Standardized (β) coefficient		Multiple-group comparison	
			With volunteer experience ($n = 74$)	Without volunteer experience ($n = 363$)	χ^2	*p*
Attitude	<---	Knowledge	.37***	.23***	2.116	.146
Subjective norms	<---	Knowledge	.04	-−.11*	1.549	.213
PBC	<---	Knowledge	.15	.35***	3.615	.057
Intention	<---	Knowledge	−.43***	−.14*	3.571	.059
Intention	<---	Attitude	.13	.03	.289	.591
Intention	<---	Subjective norms	.25*	.01	3.479	.062
Intention	<---	PBC	−.11	−.24***	1.623	.203
Paths between control variables, belief variables, and intention						
Attitude	<---	Academic level	.03	-.01	.088	.767
Subjective norms	<---	Academic level	.08	.09	.007	.933
PBC	<---	Academic level	.37***	.15**	3.626	.057
Intention	<---	Academic level	−.02	−.08	.423	.516
Attitude	<---	Gender	.21*	−0.05	4.606	.032
Subjective norms	<---	Gender	−.04	−.25***	4.288	.038
PBC	<---	Gender	.25*	−.12*	10.091	.001
Intention	<---	Gender	−.01	−.1	1.064	.302

Note. Overall difference: $\chi^2 (15) = 34.991$, $p = .002$. PBC = perceived behavioral control.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$, indicating a significant path.

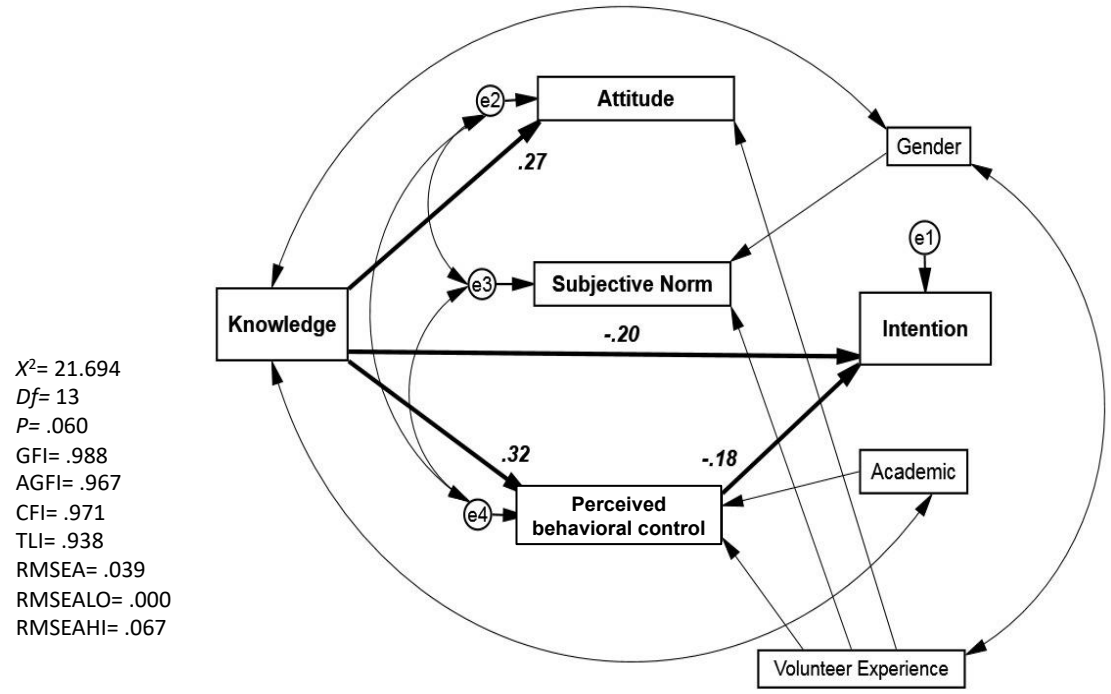

Figure 1: Revised Path Model: Exploring the Main Path Model of Intention to Volunteer to Care for COVID-19 Patients

Note. Only significant paths are shown with standardized beta estimates of the main paths.

DISCUSSION

We selected the TPB as a framework because of its evidence supporting the relationship between belief variables (attitude, subjective norms, and PBC) and intention. Using multiple-group analysis, we explained the relationship between the belief variables knowledge, volunteer experience, gender, and academic level.

The Main-path Model

In the main-path model, we evaluated the direct and indirect influence of the study variables on nursing students' intention (without the demographic subgroups). Self-efficacy, or the individual's beliefs and expectations about their ability to accomplish a task, is documented in the literature to influence intention. Tran *et al*., (2021) reported a significant positive relationship between PBC and intention to participate in COVID-19-related activities among nursing students in Vietnam [14].

Conversely, our analyses indicated the only two variables, PBC and knowledge, significantly influenced intentions. Although knowledge positively increased the levels of PBC, both knowledge and PBC negatively impacted nursing students' intentions to care for COVID-19 patients (Figure 1). The experience of distancing oneself from family and others for a period contradicted the fundamental principles of societal unity. Generally, Oman has a collective society, with a family- and community-centered culture, where multiple generations of family members commonly live in a single household. Society heavily emphasizes the role of connections, and asking people to stay away from one another is a shocking concept which may have contributed to the negative subjective norms and intentions to care for COVID-19 patients.

The counterintuitive relationship between PBC and intention can be also logically explained as the result of the perceived threat the COVID-19 pandemic presents. The abundance of conflicting information about COVID-19 and the controversy over the preventive measures and treatments may have created uncertainties for nursing students, especially for their involvement in patient care. Additionally, during this period, the realization of the seriousness of the pandemic was at its peak, especially after the implementation of strict containment protocols. The status quo may have created a realization of "knowing enough" to avoid risky situations such as volunteering [15]. To further explain these complex relationships, we examined the differences within controlled demographic variables (gender, academic level, and volunteer experience).

Determinants of Intentions Across Groups
Academic Level: Path-Model 1

Our findings agreed with previous literature that education level significantly influences the intention to care for patients with emerging infectious diseases [16]. Although senior students (3rd & 4th years) had higher scores in knowledge and PBC, they attained significantly lower intention scores than novice junior students (1st &

2nd years). In addition, subjective norms were an important positive predictor of intention in the seniors and juniors. Increasing knowledge for juniors, particularly females, with less experience and exposure in the field may improve their confidence and make them more resistant to the influence of family members, peers, and teachers. In contrast, seniors may have felt better able and well supported by people around them to care for COVID-19 patients.

Gender, Male vs. Female: Path-Model 2

Our analysis of gender differences linked male students to more willingness to volunteer to care for COVID-19 patients despite having less knowledge. The findings also indicated that the positive subjective norms were a significant predictor of the intention among males compared to females. Culture may play a role in explaining these findings because a recent study in a similar context found male students more likely to volunteer in Saudi Arabia [17]. In contrast, a study in Vietnam by Tran *et al*., (2021) showed that gender was not a significant predictor of willingness to volunteer.

Communities vary in their expectations for gender role differences. In Arabic cultures, males are viewed as physically and psychologically capable of functioning and adapting to challenges, such as COVID-19. Our findings lend support to the idea of the altruistic male role. In Arabian societies, gender role is highly dictated by traditions [18]. Generally, men are expected to be leaders and providers, and are responsible for their families and communities' security and safety, especially in difficult times. Cultural expectations may explain male students' lower response to significant others' opinions and, thus, higher levels of altruistic behavior toward caring for COVID-19 patients.

Previous Volunteer Experience: Path Model 3

Students who had volunteer experience reported higher scores of positive attitudes, subjective norms, and PBC. However, the results showed no significant difference in the intention to care between students with and without volunteer experience. In contrast, previous volunteer experience was a significant predictor of willingness to volunteer to care for patients with COVID-19 [14]. Additionally, a meta-analysis review conducted by Niebuur *et al*., (2018) suggested that volunteer experience significantly determines the likelihood of involvement in volunteer work [19].

The constructed multiple-group analysis indicated that females with volunteer experience had better attitudes, subjective norms, and PBC compared to females without volunteer experience. Comparatively, male students' results were insignificant for the previously mentioned constructs, indicating the importance of volunteer experience in shaping students' beliefs, particularly females, about caring for patients with COVID-19 in eliminating the influences of subjective norms.

LIMITATIONS

Several limitations are present. First, the data were collected from one governmental college; thus, the findings may not be generalized to others. Second, the study instruments were developed and used for the first time in this study. Although the testing process for the instrument's validity and reliability was done, there is still a need for further validity testing. Third, the administration of the questionnaire in English, even though a simple language was used, might raise concerns for non-native English speakers. Finally, because we conducted this study early in the pandemic, the findings may have been shaped by the fear and circumstances of limited understanding of the situation, thus limiting the results' applicability.

CONCLUSION

Previous volunteer experience significantly improves the belief factors (attitudes, subjective norms, and PBC) among females and junior students. If required, volunteer experience might have the potential to positively affect intention. Moreover, understanding the basis of this study is warranted. We have integrated our understanding of the cultural norms into the analyses. Though this was not the study's primary purpose, our findings suggest that the gender roles in Arabic culture might contribute to understanding the results. We highlighted the cultural issue between males and females in dealing with the subjective norms because males showed higher resistance to the negative subjective norms, which may gradually subside with academic progress. Finally, we recommend encouraging students' involvement in volunteer events throughout their academic progress to strengthen their confidence and self-efficacy.

Implications for nursing and health policy

Despite the negative impact of the COVID-19 on nursing education, it has forced creativity and innovation into ongoing nursing training. Countries could benefit from revising healthcare policies to include volunteer opportunities in practice is essential to improve their intentions volunteer in crises, support the healthcare system, and alleviate the continuing healthcare worker shortage.

Over the past decade, the world has experienced a series of natural and manmade crises that have severely affected people and infrastructure. Building students' confidence, self-efficacy and providing opportunities for volunteering is crucial for providing nursing practice with effective participation during crises including pandemics. Considering this study's findings while designing nursing programs may advance the quality of provided healthcare services. We recommend that future

research focus on evaluating the barriers to and facilitating the current practicum courses of nursing programs.

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Ethical Approval: The study was approved by the Institutional Review Board (Approval no. REC/OCHS-1x-2xx4). of the authors' college. No identifiable information was collected. The participation was voluntary and all participants in this study provided informed consent before being enrolled. The study was conducted in accordance with the Declaration of Helsinki.

Authors Contributions: All authors of this study qualify for authorship. All authors participated in designing the study, data collection, data analysis, and interpretation of data, and writing the article. HKA, MAA, SBA and TSA contributed reagents, materials, analysis tools or data SMA. TSA, MAA, SAB, SSA and ASA wrote the initial draft. SAB, TSA and HKA prepared the final draft and critically revised its important intellectual content. SAB, KKA, MAA, SSA, TSA and ASA approved the final draft and submitted to the journal. All authors critically reviewed and approved the final draft of the article and are responsible for the content and similarity index of the article.

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