

# Factors Associated with Volunteering among Saudi Arabian Healthcare College Students



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## Abstract:

**Background:** Volunteering is a helpful service to society, embodying personal commitment and a spontaneous result of community life. In this study, factors associated with the intention to volunteer among healthcare students in Saudi Arabia were investigated using the theory of planned behavior.

**Methods:** This was a cross-sectional, survey-based observational study. The data collection tool comprised eight sections (demographic information, volunteering experience, behavioral intention, attitude, subjective norm, perceived behavioral control, motivation to volunteer, and satisfaction from volunteering) in accordance with the theory of planned behavior. The sample size was calculated using G\*Power software. A descriptive analysis and univariate and multivariate linear regression analyses were performed to determine the significant differences among the variables.

**Results:** A total of 402 healthcare students completed the survey after obtaining permission from the ethics committee. The average age was 23 ( $\pm 2.2$ ) years, and a majority of the participants were female (60.5%). Most participants were pharmacy students (39.4%), and the average grade point average of all participants was 4.22 ( $\pm 0.5$ ). About half of them (49.8%) had previous volunteering experience. A significant association was found between the intention of healthcare students to volunteer and attitude ( $\beta = 0.350$ ;  $p < 0.001$ ), subjective norm ( $\beta = 0.116$ ;  $p = 0.001$ ), perceived behavioral control ( $\beta = 0.257$ ;  $p < 0.001$ ), age ( $\beta = -0.203$ ;  $p = 0.023$ ), male gender ( $\beta = -1.068$ ;  $p = 0.005$ ), and volunteering experience ( $\beta = 1.156$ ;  $p = 0.023$ ).

**Conclusion:** Attitude, subjective norm, perceived behavioral control, previous volunteering experience, age, and male gender were associated with willingness to volunteer. These findings suggest that healthcare education institutions can develop strategies to engage and motivate student volunteers in community outreach programs. Our study results cannot be generalized, as it was conducted only in the Qassim region of Saudi Arabia.

**Keywords:** Volunteering, Questionnaire, Observational study, Healthcare students, Theory of planned behavior, Saudi Arabia.

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## 1. INTRODUCTION

Volunteering is an essential service for society. Within the educational system, volunteering not only benefits students but also contributes markedly to the communities

they serve [1]. It is not simply an expression of personal commitment but a spontaneous result of community life, and if well-organized and managed, volunteering can also be used in policy development [2]. A recent form of volunteering, known as online volunteering, involves

performing volunteer tasks over the Internet, without a physical presence, using personal or public access computers. Examples of online volunteering include translation, research, web design, data analysis, and database construction [3]. The practice of volunteering within formal healthcare gained global popularity following the Alma-Ata Declaration [4]. In 2018, the General Authority for Statistics reported that the percentage of Saudi volunteers in the Kingdom of Saudi Arabia reached 16.8% [5].

Previous studies have consistently shown that volunteering enhances the learning experience, improves life perspective, mental health, social skills, as well as communication and motivates volunteers [6]. Volunteering and community-oriented services are an integral part of the lives of healthcare professionals. Extensive literature reviews have highlighted numerous activities performed by volunteers, even during the challenging times of the Coronavirus disease 2019 (COVID-19) pandemic [7]. These activities not only enhance knowledge and refine professional skills but also serve as potent motivational factors, benefiting the community and fostering a profound understanding of societal needs [8].

Healthcare students need to be motivated to participate in volunteering services for the community, which can shape them into perfect healthcare professionals through a career dedicated to improving the health outcomes of society [9, 10]. Several previous studies conducted globally have revealed that student volunteers gained considerable knowledge and experience by working with other professionals and developed sympathy among students. An example of this is a study conducted among Chinese medical students who volunteered in community services during the COVID-19 pandemic [11]. Another study from Denmark reported that the medical students of Alborg University gained real-life experiences through volunteering activities [12].

A study conducted among medical students in Ireland revealed that 59% of these students volunteered during the pandemic [13]. The motivating factors for students to participate in volunteering programs include a desire to volunteer and opportunities to work with people from different cultures, improve clinical skills, gain knowledge, and, more importantly, work with many healthcare professionals [14]. A study from western Saudi Arabia also reported that volunteering demonstrated several benefits, such as improved time management, communication, and practical skills, among medical radiology students [15].

The theory of planned behavior (TPB) is a model of how human behavior is controlled that investigates an individual's intention to perform a specific behavior [16]. Three variables predict the intentions involved in a specific behavior. The first is the attitude toward the behavior, which refers to the degree to which a person evaluates or views the behavior in question positively or negatively [17]. The second is a social factor, known as the subjective norm, which refers to the perceived social pressure to perform or not perform a specific behavior [18]. Subjective norms comprise two components that act

together: beliefs about how other people, with opinions that are essential to the person, want the person to behave (normative beliefs) and positive or negative judgments about each belief (outcome evaluations) [19]. The third variable is perceived behavioral control, which refers to the realization and understanding of the ease or difficulty of performing a behavior. This factor reflects past experiences and anticipated difficulties [19]. Consequently, to the best of our knowledge, no studies have used TPB to predict the volunteering intentions of healthcare students in Saudi Arabia. Hence, in this study, the factors associated with volunteering among healthcare students are evaluated using TPB.

## 2. MATERIALS AND METHODS

### 2.1. Study Design and Participants

A cross-sectional survey-based observational study was conducted over 3 months, from May to July 2022. This study was designed to investigate the factors associated with volunteering among Qassim University healthcare students using TPB. The participants were recruited from social media using a convenient sampling method. They comprised all undergraduate and intern students from six colleges (College of Pharmacy, College of Medicine, College of Dentistry, College of Applied Medical Sciences, College of Nursing, and College of Medical Rehabilitation) in the Qassim region, with a total student population exceeding 75,000. Prior to commencing the survey, the participants were presented with an online informed consent form. Within this form, they were required to respond to a yes/no question to indicate their willingness to participate in the study. Upon agreement, the participants were directed to the survey platform; if they declined, they were acknowledged and withdrew from the survey. The participants were requested to forward the survey link to other eligible individuals to expand the study's scope.

### 2.2. Survey Questionnaire

The data in the present study were collected through an online self-administered questionnaire adopted from a previous study [20]. The final questionnaire comprised eight sections: demographic information, volunteering experience, behavioral intention, attitude, subjective norm, perceived behavioral control, motivation to volunteer, and satisfaction from volunteering. The estimated completion time for the questionnaire was 15 min. The response (outcome) variable was the intention to volunteer, while the predictor (covariate) variables were sociodemographic factors, namely age, gender, education, current academic year, marital status, grade point average (GPA), experience with volunteering, place of residence and living status, monthly income in Saudi Riyals (SAR), job status, and source of income. In the TPB survey, all questions were presented using a seven-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7). The first construct, behavioural intention, comprised three questions that assessed the dependent variable. The second construct, attitude, was evaluated using four

questions, two of which had negative responses. The subjective norm comprised four questions, including one with a negative endpoint. Perceived behavioral control encompassed a self-efficacy subcategory comprising two questions.

### 2.3. Validation of Questionnaire

The survey questionnaire was validated for its content and reliability. The pretesting method is a crucial step in the development of survey-based studies. This method aims to identify concerns related to the questions posed that could impact how respondents and interviewers comprehend and respond to the questions. In this study, pretesting was conducted by interviewing individuals from various medical specialties using the think-aloud method. The survey's content was reviewed and validated by two assistant professors. The final version of the questionnaire was tested on a sample of 10 students to check the clarity, understanding, and ease of administration. For better responses, the English version of the questionnaire was back-translated into Arabic.

### 2.4. Sample Size

The sample size for the present study was determined based on calculations conducted using G\*Power (version 3.1.9; developed by the Heinrich-Heine University in Düsseldorf, Germany). The effect size, as per Cohen (1988), was considered medium (0.015) [21]. The significance level (alpha) was established at 0.05, with a power of 0.99 and 20 predictors. Accordingly, the total estimated number of participants was 284.

### 2.5. Data Coding, Management, and Analysis

After collecting responses using Google Forms, the data were meticulously imported into Microsoft Excel® for Office 365 MSO (Microsoft Corporation, Redmond, WA, USA, 2018), where it underwent thorough cleaning and coding processes. Subsequently, the dataset, which had been cleaned thoroughly, was subjected to an analysis using the statistical software Stata (StataCorp LP, College Station, TX, USA). The descriptive data were summarized using frequencies and percentages, while the continuous data were represented by either the mean and standard deviation or the median and interquartile range. The choice between the mean and median depended on the data normality, which was assessed using Kolmogorov-Smirnov tests. A comprehensive multivariate linear regression analysis was conducted to unveil the relationships between the dependent and independent variables, providing detailed insights into their complex associations. Initially, a simple linear regression analysis was performed to ascertain the independent variables that were significantly associated with the dependent variable. The selection criteria were a significance level of  $p < 0.05$  and consideration of coefficient magnitudes to capture both statistical significance and the strength of the relationships. The variables meeting these criteria were chosen for inclusion in the multivariate model to ensure that multicollinearity was addressed. Multicollinearity was assessed using a variance inflation factor and tolerance.

Variables with a variance inflation factor of less than 10 and tolerance of more than 0.10 indicated no multicollinearity. Following the multicollinearity test, a preliminary final model was obtained. The final model was then constructed using the selected independent variables that were deemed statistically and substantively significant by the simple regression analysis. These variables comprised attitude, subjective norm, perceived behavioral control, age, gender, volunteering experience, and GPA.

### 2.6. Missing Data

The percentage of missing values in our study was less than 5%. According to Dong and Peng [22], there is no cut-off point for missing values. However, Schafer [23] mentioned that 5% or less of missing values are of no consequence. Bennett [24] stated that missing data may be biased if the value exceeds 10%.

### 2.7. Ethical Approval

This study was conducted following ethical approval from the Qassim Region Research Ethics Committee, which required the confidentiality of personal and identifiable information.

## 3. RESULTS

### 3.1. Demographic and Socioeconomic Characteristics

Of the 412 healthcare students invited to participate in the online survey, 402 completed the questionnaire, resulting in a response rate of 97.6%. The participants had an average age of 23 years ( $\pm 2.2$ ), an average GPA of 4.22 ( $\pm 0.5$ ), and a mean monthly income of 1555.1 SAR ( $\pm 1709.8$ ). Most of the participants were female (60.5%) (Fig. 1). Regarding marital status, the majority were single (98%), with 96% reporting no children. Academic progression indicated that 26.6% were in their first year, 14.9% in their second year, 8.0% in their third year, 12.7% in their fourth year, 27.1% in their fifth year, and 10.7% in their intern year.

Regarding the distribution across colleges, most respondents (39.4%) were affiliated with the College of Pharmacy, followed by 32.5% with the College of Medicine, 8.95% with the College of Applied Medical Sciences, 8.18% with the College of Medical Rehabilitation, 7.93% with the College of Nursing, and 3.1% with the College of Dentistry.

Regarding the participants' job status, a minor percentage (1.99%) had full-time employment, 2.49% held part-time jobs, and the majority (95.52%) were unemployed. Regarding the participants' income source, 3.4% derived income from their own businesses and 2.2% from part-time jobs, 43.2% received financial support from their families, and the majority (89.8%) relied on university student allowances. Notably, all participants (100%) had an income source.

Regarding socioeconomic status, the majority (96.5%) resided with their family or relatives, and 42.5% had a family member who worked in the healthcare field. In particular, 29.3% had a family member who was a medical

doctor; 15.3% a dentist; 22.3% a pharmacist; 11.1% an applied medical specialist; 2.1% a psychologist; and 19.9% were employed in other health-related roles.

Regarding volunteering experience, nearly half of the participants (49.8%) had previous volunteering experience, while 50.3% had no previous experience (Fig. 2). Among those with no previous volunteering experience, 10.4% cited a lack of perceived benefits from volun-

teering, 58.5% highlighted a scarcity of opportunities, 11.32% mentioned financial constraints as reasons for not volunteering, and 19.8% reported other reasons for not volunteering. The majority (65.5%) volunteered in the healthcare field and 9.7% in non-healthcare sectors; 24.8% participated in both healthcare and non-healthcare volunteering activities. Table 1 presents comprehensive details of the participants' demographic and socio-economic characteristics.

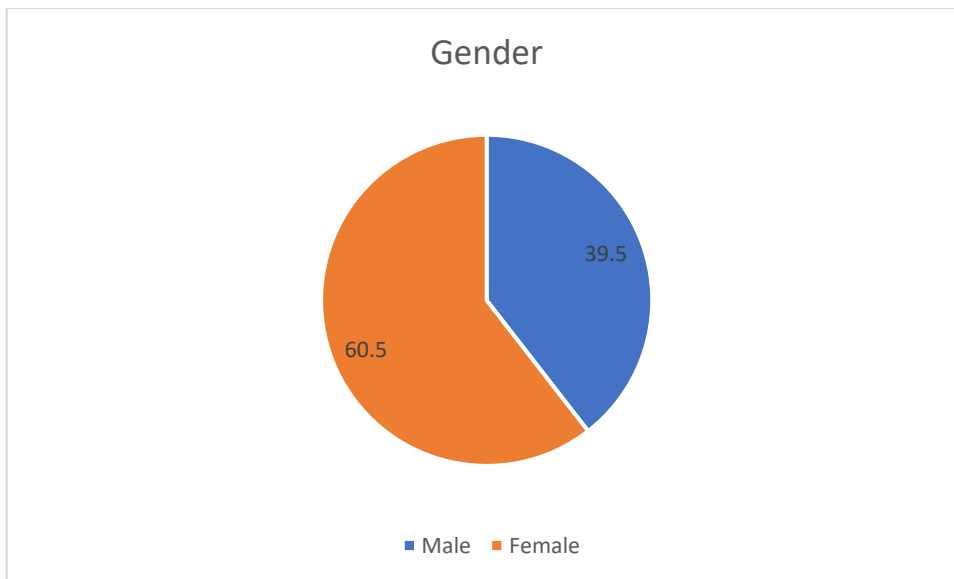


Fig. (1). Gender distribution of the study participants.

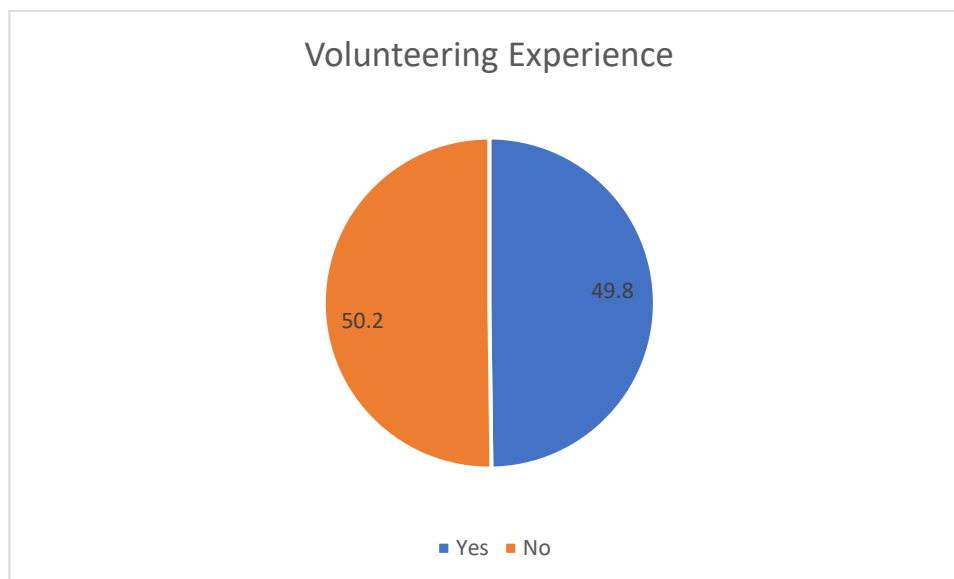


Fig. (2). Volunteering experience.

**Table 1. Demographic and socioeconomic characteristics of Saudi Arabian healthcare students (n = 402).**

Variable	%	n
Age, Mean ( $\pm$ SD)	23.8 ( $\pm$ 2.2)	
GPA, Mean ( $\pm$ SD)	4.2 ( $\pm$ 0.5)	
Total monthly income, Saudi Ryals, Mean ( $\pm$ SD)	1555.1 ( $\pm$ 1709.8)	
Marital status	%	n
Single	98	394
Married	1.5	6
Divorced	0.5	2
Children	%	n
Yes	3.3	5
No	96.7	147
Current year status	%	n
First	26.6	107
Second	14.9	60
Third	8	32
Fourth	12.7	51
Fifth	27.1	109
Intern	10.7	43
College	%	n
College of Pharmacy	39.4	154
College of Medicine	32.5	127
College of Dentistry	3.1	12
College of Applied Medical Sciences	8.9	35
College of Nursing	7.9	31
College of Medical Rehabilitation	8.2	32
Employed	%	n
Yes	4.5	8
No	95.5	384
Source of income (multiple answers were allowed)	%	n
Own business	3.4	14
Part-time job	2.2	9
Family	43.2	178
Students' allowance from the university	89.8	370
Other	1.7	7
Where do you currently live?	%	n
With family/relatives	96.5	388
With friends on campus (dormitory)	0.5	2
With friends outside the campus	0.3	1
Alone on campus (dormitory)	1	4
Alone outside campus	1.7	7
Is any of your family member involved in the healthcare field?	%	n
Yes	42.5	171
No	57.5	231
What are the healthcare areas of your family members?	%	n
Medical doctor	29.3	71
Dentist	15.3	37
Pharmacist	22.3	54
Applied Medical Specialist	11.1	27
Psychologist	2.1	5
Other	19.9	48
If your answer is "No," what is the reason?	%	n
I think there is no benefit to volunteering	10.4	22
There are no such opportunities	58.5	124
Financial concerns	11.3	24
Other	19.8	42

(Table 3) contd.....

Variable	%	n
Where did you volunteer?	%	n
In a healthcare field	65.5	135
Non-healthcare field (e.g., charity)	9.7	20
Both	24.8	51

Abbreviation: SD, standard deviation.

**Table 2. Univariate linear regression analysis of data for the intention of healthcare students to volunteer.**

Variable	Beta Coefficient	95% Confidence Interval		p-value*
		Lower limit	Upper limit	
Participant attitude	0.489	0.399	0.578	<0.001*
Participant subjective norm	0.253	0.183	0.323	<0.001*
Participant perceived behavioral control	0.49	0.385	0.595	<0.001*
Participant age	-0.292	-0.492	-0.091	0.004*
Male gender	-1.594	-2.491	-0.697	0.001*
Marital status	0.005	-3.665	3.675	0.998
GPA	-0.190	-1.037	0.658	0.66
Total monthly income	-0.000	-0.000	0	0.081
Participants with children	-0.383	-1.306	0.54	0.415
Participants who are pharmacy students	-0.101	-1.016	0.814	0.829
Participants with no income other than the university's allowance	0.576	-1.575	2.727	0.599
Participants who live with their family	0.636	-1.790	3.062	0.607
Participants with family members in the healthcare field	-0.358	-1.257	0.542	0.435
Volunteer experience	1.396	0.517	2.276	0.002*
Positive GPA	1.846	0.899	2.792	<0.001*

Note: \*p-value &lt; 0.05 indicated with asterisk.

Abbreviation: GPA, grade point average.

**Table 3. Multivariate linear regression analysis of data for the intention of healthcare students to volunteer.**

Variable	Beta Coefficient	95% Confidence Interval		p-value*
		Lower limit	Upper limit	
Attitude	0.350	0.261	0.439	<0.001*
Subjective norm	0.116	0.049	0.183	0.001*
Perceived behavioral control	0.257	0.149	0.364	<0.001*
Age	-0.203	-0.379	-0.028	0.023*
Male gender	-1.068	-1.813	-0.323	0.005*
Experience	1.156	0.163	2.150	0.023*
GPA	0.152	-0.895	1.198	0.078

Note: \*p-value &lt; 0.05 indicated with asterisk. Abbreviations: GPA, grade point average.

### 3.2. Univariate Linear Regression Analysis

The association between volunteering and other predictors was explored using univariate linear regression analysis, as illustrated in Table 2. The results revealed a positive relationship between volunteering and attitude ( $\beta = 0.489$ ; 95% confidence interval (CI) = 0.399-0.578) and between volunteering and subjective norm ( $\beta = 0.253$ ; 95% CI = 0.183-0.323). A positive association was also found between volunteering and the participants' perceived behavioral control ( $\beta = 0.490$ ; 95% CI = 0.385-0.595). Regarding age and gender, a significant positive relationship was found between volunteering and age ( $\beta = -0.292$ ; 95% CI = -0.492 to -0.091) and male

gender ( $\beta = -1.594$ ; 95% CI = -2.490 to -0.697). Furthermore, there was a significant association between volunteering and volunteering experience ( $\beta = 1.396$ ; 95% CI = 0.517-2.276) and between volunteering and GPA ( $\beta = 1.846$ ; 95% CI = 0.899-2.792).

### 3.3. Multivariate Linear Regression Analysis

Table 3 presents the results of the multivariate linear regression analysis. A significant positive relationship was observed between volunteering and the following factors: attitude ( $\beta = 0.350$ ; 95% CI = 0.261-0.439;  $p = 0.000$ ), subjective norm ( $\beta = 0.116$ ; 95% CI = 0.048-0.183;  $p = 0.001$ ), perceived behavioral control ( $\beta = 0.257$ ; 95% CI =



0.149-0.364;  $p = 0.000$ ), age ( $\beta = -0.203$ ; 95% CI =  $-0.379$  to  $-0.028$ ;  $p = 0.023$ ), male gender ( $\beta = -1.068$ ; 95% CI =  $-1.813$  to  $-0.323$ ;  $p = 0.005$ ), and volunteering experience ( $\beta = 1.156$ ; 95% CI =  $0.163$ - $2.150$ ;  $p = 0.023$ ). However, no significant association was found between the intention of healthcare students to volunteer and their GPA ( $\beta = 0.152$ ; 95% CI =  $-0.895$ - $1.198$ ;  $p = 0.078$ ).

#### 4. DISCUSSION

The novelty of this study is that it evaluated factors associated with the intention to volunteer among healthcare students in Saudi Arabia using TPB. In this study, students affiliated with healthcare institutions had positive attitudes toward volunteering regarding perceived pressure from others to volunteer, felt confident that behavioral performance would be easy, and had strong intentions to volunteer. The average age of the participants was 23 years, with a standard deviation of 2.2 years. This was similar to another study conducted in Saudi Arabia among healthcare students during the COVID-19 pandemic, where the mean age was 22.56 years [9]. This suggests that most participants fell within the early to mid-twenties age range. Usually, healthcare students spend 5-7 years in college in addition to the preparatory year. It is important to motivate the students at an early age as it develops social desirability among them to know the value of volunteering and to serve the community as a healthcare professional in the future.

The average GPA of the participants was 4.2 ( $\pm 0.5$ ), which indicates that the academic performance of most of the respondents was very good. A possible explanation for this is that most of the students (98.0%) were single and the majority (96.7%) had no children. These participants had no additional responsibilities of taking care of a partner or raising a child; therefore, they could dedicate their time to studying. However, unlike in a study from Italy [25], the current study did not reveal a significant association between GPA and intention to volunteer. Additionally, most participants (96.5%) lived with their families. Therefore, having the support of family could have contributed to ensuring a stable environment for the participants [26].

The average monthly income of the participants was 1555.1 SAR ( $\pm 1709.8$ ). This amount is higher than the average income of 990 SAR for Saudi students, which is their allowance from the university. A possible explanation for the higher income in this study is that some students had additional sources of income, either from a family business (41.8%) or from their own business (3.5%). However, this factor did not exhibit a significant association with the intention to volunteer, similar to the findings of a study from Malaysia [27].

Attitude toward volunteering is a significant predictor of volunteer intentions. The majority of the healthcare students in our study indicated that volunteering as a service to society is beneficial, pleasant, and useful. This result is consistent with those of previous studies [28-30], which reported that the TPB predictors of attitude, subjective norm, and perceived behavioral control are

significantly and positively associated with the intention to volunteer for community service in the future, with attitude and perceived behavioral control as the strongest correlates. Our result is also consistent with Lee *et al.*'s study [31], in which attitudes and perceived behavioral control emerged as statistically significant predictors of volunteering. This indicates that individuals with positive attitudes are more inclined to participate in volunteering activities [31].

The study participants believed that important individuals in their lives would support their decision to volunteer. However, they did not perceive any external pressure to engage in volunteering activities. This finding corresponds to those in a previous study published in 2013, which revealed that students with a strong intention to volunteer as a service to society in the future felt encouraged by significant others who had previous volunteering experience [29]. Additionally, in this study, subjective norms regarding intentions to volunteer were examined and found to be a statistically significant predictor of volunteering. This suggests that individuals are more likely to volunteer when they receive supportive encouragement from their social circles [31].

In our study, the healthcare students were confident in their ability to volunteer. They believed that volunteering was easy, within their control, and a personal choice. This finding aligns with those in a previous study that identified perceived behavioral control as having the strongest effect on the intention to volunteer [32]. Another study indicated that this sense of control was the most important factor in the decision to volunteer, suggesting that students who are confident in their skills and ability to volunteer have a strong intention to volunteer [29]. Confidence and self-efficacy are key factors in being willing and prepared to volunteer, as self-efficacy strongly influences behavior [33].

In our observations, we noticed a higher number of female volunteers (60.5%) compared to male volunteers (39.5%). This is similar to a study conducted among radiology students in western Saudi Arabia, of which 57.9% were female [15]. This was contradictory to a previous study which indicated that male students displayed more willingness and readiness to volunteer compared to female students [34]. Another study published in 2022 revealed equal participation in volunteering activities between females and males despite a higher number of females (76.5%) compared to males (23.5%) in the studied population [35]. However, a 2022 study investigating volunteering among Chinese college students during the COVID-19 pandemic revealed that female students were less inclined to volunteer [36].

Moreover, we identified a positive relationship between volunteering experience and the intention to volunteer in the future. A study performed in northern China that evaluated the factors influencing people's willingness to volunteer and engage in emergency volunteering highlighted that volunteering experience significantly predicted willingness to volunteer, possibly owing to individuals acquiring the necessary knowledge

and skills for emergency volunteering [33]. One study emphasized that volunteering experience, whether in the healthcare or non-healthcare sectors, was a crucial factor in determining both readiness and willingness to volunteer [34].

Previous studies have shown that volunteering has many advantages, such as improving one's helping mentality, professional growth, ability to work in a team, practical skills, knowledge level, friendship circle, time management, coordination skills, and ability to work with people from different cultures and backgrounds [15, 37, 38]. Consequently, health volunteering hours may increase the chance of getting a job immediately after graduation, thereby contributing to career opportunities [36-39]. The perceptions and beliefs about volunteering among students play a major role in the decision to opt for volunteering or not. It is recommended to include the importance of community service and health volunteering in the curriculum to motivate students to become good healthcare providers for society and the serving country, thereby encouraging patriotism. Moreover, to become a real human being, every individual should have sufficient exposure and experience to understand the needs and expectations of society, which can be obtained from volunteering. The current generation of students is mostly busy in their "online life," without caring about their peers, family, and society. Hence, it is important to identify and overcome the factors or barriers that lack the enthusiasm to volunteer themselves for community services.

## 5. LIMITATIONS

The present study has several limitations. First, the external validity of cross-sectional analyses was constrained to a population similar to the study population. As a result, while these analyses may raise concerns regarding cause and effect, they do not raise questions about the relationships among the variables. Second, due to the use of convenience sampling and an online survey method, we could not evaluate the potential impact of non-respondents. Recall and reporting biases cannot be ruled out. Third, the results cannot be generalized to the entire Kingdom of Saudi Arabia, as this study was restricted to Qassim University health students only. Furthermore, despite the assurance provided to the participants regarding the privacy of their responses, it is important to acknowledge the possibility that social influences may have impacted the level of transparency in their feedback.

## 6. FUTURE STUDY

Future studies with a longitudinal and multicentric design would provide a clearer picture of the impact of volunteering among healthcare students in shaping them to be good professionals with increased patriotism and commitment toward society and the general public to overcome any disaster or pandemic in the future. Moreover, future studies can identify the barriers that restrict volunteering habits among students, along with the solutions. Future studies can also identify the personal profile of healthcare students who are interested in

volunteering, such as whether they are confident/shy, curious/uninquisitive, calm/aggressive, or sociable/un-sociable and whether there is an association with the intention to volunteer. Additionally, future studies could measure the impact of volunteering on healthcare students' knowledge and information and determine whether volunteering adds scientific value to the students. Moreover, evaluating whether volunteering helps prepare students for a job after graduation and whether they have gained the necessary skills would be useful. Finally, these findings can encourage educational institutions and professional organizations to provide additional volunteering programs and opportunities to healthcare students in the form of online or episodic volunteering, especially given that volunteering and community service can increase the chances of being hired.

## CONCLUSION

The present study evaluated the factors associated with the intention to volunteer among healthcare students in Saudi Arabia using TPB. The results indicated that the TPB variables of attitude, subjective norm, and perceived behavioral control are significant predictors of the intention to volunteer. Additionally, the results suggested a positive relationship between previous volunteering experience, age, and sex with willingness and readiness to volunteer. It was found that students' time management skills, coordination skills, and working experience with other healthcare professionals can motivate them to overcome their shyness or hesitation to be involved in community activities, thereby encouraging them to be real healthcare professionals serving society. Thus, educational institutions and professional organizations can consider these factors to motivate students, increase their engagement, and provide additional volunteering opportunities by including community service or volunteering in their university curriculum. This study can also encourage further research on identifying and overcoming barriers related to volunteerism among healthcare students in Saudi Arabia.

## AUTHORS' CONTRIBUTIONS

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

## LIST OF ABBREVIATIONS

TPB	=	Theory of Planned Behavior
GPA	=	Grade Point Average
CI	=	Confidence Interval

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained on May 12, 2022, from the Committee of Research Ethics, Deanship of Scientific Research, Qassim University, Saudi Arabia (document No: 21-18-03).



## HUMAN AND ANIMAL RIGHTS

All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

## CONSENT FOR PUBLICATION

Informed consent was obtained from the participants.

## STANDARDS OF REPORTING

STROBE guidelines were followed.

## AVAILABILITY OF DATA AND MATERIALS

The datasets used in this study are available from the corresponding author upon reasonable request [Y.A.].

## FUNDING

None.

## CONFLICT OF INTEREST

The author declares no conflict of interest, financial or otherwise.

## ACKNOWLEDGEMENTS

Declared none.

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