

KNOWLEDGE, ATTITUDE, AND PERCEIVED FACTORS OF HIGH SCHOOL STUDENTS REGARDING NURSING PROFESSION IN MAKKAH REGION

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Abstract

Background: The current nursing shortage and the lack of willingness of young people to choose nursing as a profession is a major concern in many countries which was felt strongly during the recent pandemic. Therefore, it would be useful for the community to encourage the increase and upgrading of nursing. **Aim:** To assess knowledge, attitude and perceived factors of high school students regarding nursing profession in Makkah Region, KSA. **Settings:** This study was conducted at two secondary schools in Makkah, Saudi Arabia. **Sampling:** A convenient sample of 348 students was represented in this study. The data was collected by online questionnaires. **Results:** This study revealed that there is a high statistical significance regarding the factors that prevent students from being a nurse mainly in the items nursing is not an encouraging or enjoyable job, the personality of the nurse requires obeying the orders of others $p = (0.000, 0.002,$ respectively). In addition, the study found to a highly significant correlation between the student's attitude and the sociodemographic characteristics mainly in items of the study year, and nationality at $p = (0.000, 0.005$ respectively). Furthermore, there was a negative correlation between the age and attitude level of students with a p-value 0.000. **Conclusion:** The majority of the studied sample had an average level of knowledge and had a negative attitude related to the nursing profession. There was no significant correlation between students' attitude and their level of knowledge. Female students are more interested in choosing the nursing profession than male students. **Recommendation:** Create awareness programs with a realistic picture of the nursing profession in order to develop an admirable image of nursing and manage the future shortage.

Keywords: Attitude, Knowledge, High school students, Nursing profession, Perceived Factors

Introduction:

Nursing is an occupation that serves humanity. The global nurse shortage has become a matter of concern especially after the COVID-19 pandemic and will continue to worsen unless effective recruitment strategies are implemented (**Shrestha & Sharma 2021**). One of those strategies is to improve the image of the nursing profession to encourage students to study nursing. Another effective strategy to eliminate shortages is to hire men in the nursing profession (**Kumar et al., 2022**).

According to the statistical report from the Ministry of Health issued for the year 2021, the national rate reached 2.2 nurses per 1,000 population, and it is expected to reach 4.25 nurses per 1,000 population in 2030 in all health sectors, and the number of Saudi nurses is currently 85,834 male and female nurses in all sectors, with a rate of 42.6%. Saudis in the Ministry of Health constitute 79% of the total Saudi nursing staff in all sectors (**Saudi Ministry of Health 2021**).

Nurses are the most essential part of the patient healthcare team, making up the bulk of the workers in healthcare. They play an essential role in disease prevention at the primary level of care by providing health education (Cheraghi et al., 2019). Also, nursing is a specialty focusing on treating patients, families, and communities within the healthcare industry so that they can achieve, sustain, or restore optimum health and quality of life (Kumar et al., 2022, Kaundal et al., 2018, and Sreeja & Nageshwar 2018).

The literature highlights that a negative image of the nursing profession causes stress, job dissatisfaction, frustration, and decreased work performance in nurses, which affects the quality of care and work climate (**Tura et al., 2021**). This image can also affect users of health services, given the organizational and administrative policies of health systems, and the personal choice to become a nurse. Furthermore, it is possible that people will not choose or recommend other people to become nurses because of low pay, high workload, and poor job prospects, particularly because of a lack of adequate social recognition (**Rubbi et al., 2017**).

Several factors determine this negative attitude among the public, which may include substandard job criteria, no specific job descriptions, the dominance of doctors in the medical field, a lack of autonomy, no specific promotional and advancement opportunities, ignorance of high qualifications for promotion and selection, and low wages and incentives (**Paudel & Koirala, 2019**).

Career selection is a multifactorial decision-making process that is influenced by both intrinsic and extrinsic personal factors, and internal factors are a major contributor to nursing selection. Studies of intention to enter nursing programs among adolescents and young adults have found that interest tends to focus on personal factors, such as a desire to help others and personal interest (**Al-Ahliyya 2020, and Olubiyi et al., 2020**). The Knowledge, Attitudes, and Practices (KAP) paradigm

indicates that practices are determined by a person's attitude and knowledge toward behaviors. In the context of this model, knowledge and attitude about nursing can be seen as intrinsic aspects for an individual to make a personal decision to choose nursing as a profession (Zhu et al., 2021).

However, to achieve this goal, nursing programs face great challenges in attracting qualified candidates, and many young people, especially high school graduates, including those in the country, are reluctant to choose nursing as a profession. There is an urgent need for a study that can provide valuable insights into recruitment and retention strategies for high school graduates in nursing and help develop effective strategies for attracting high school graduates to study nursing (Gao et al., 2019). Therefore, the purpose of the study was to assess the knowledge, attitudes, and perceived factors of secondary school students regarding the nursing profession in the Makkah Province, Saudi Arabia.

MATERIALS AND METHOD:

The current study Aims:

The aim of the current study was to assess high school student's knowledge, attitude and perceived factors regarding nursing profession in Makkah region, KSA.

Objectives

To evaluate the knowledge, attitude and perceived factors regarding nursing profession in Makkah region, KSA.

Research Questions

- What is the knowledge and attitude of Saudi male and female secondary school students toward the nursing profession?
- What are the perceived factors that prevent students from being a nurse?

Research Design: A cross-sectional study was utilized for this study.

Subjects & Method

The current study was carried out at secondary school for girls and secondary school for boys in Makkah region. A study sample consists of 348 students (174 males and 174 females) participated in the study. Sample size was calculated using an online sample size calculator with a 5% confidence interval and 95% confidence level based on a total number of 1000 students. The inclusion criteria were secondary school students (males and females) of the scientific study section who expressed their willingness to participate in the study. While the exclusion criteria were students who did not complete the questionnaire paper or who refused or failed to sign an informed consent form. Data were collected by using an online interview questionnaire.

The tool of data collection

A structured interview questionnaire adapted from (Abudari, et al., 2016) and modified by the investigator considering the current relevant literature. The questionnaire was written in English and language experts used the back-translation method to create the final Arabic version of the tool. The following questionnaire is written in plain Arabic and consists of four parts

Part 1: The social and demographic characteristics of the studied sample include five questions related to gender, age, area of residence, year of study, nationality, and whether any of the family members work in the field of nursing.

Part 2: Focuses on questions about students' knowledge of the nursing profession. There are seven questions. **Each question has two levels of response: yes and no. It will be awarded a score of 1 for a correct answer, and an incorrect answer will be awarded a score of zero.** The good knowledge is equal to 75% of the total score, average knowledge is equal to 75%-60% of the total score, and poor knowledge is equal to 60% of the total score.

Part 3: This part focuses on students' attitudes towards the nursing profession. There are nine questions with five likes. The grading system is based on a 5-point Likert scale, where “strongly disagree” equals 1, “disagree” equals 2, “undetermined” equals 3, “agree” equals 4, and “strongly agree” equals 5, Positive attitude is 60% of the total score, and <60% is negative attitude.

Part 4: This part focuses on factors that Prevent Students from being a Nurse, There are twelve questions in addition to two open end questions.

Tool validity and reliability:

Study tool validation was performed by five nursing professionals. The reliability of the questionnaire was confirmed by the Cronbach alpha factor test = 0.94.

Pilot study:

A pilot study was conducted on 35 patients (10% of the study sample) to test the clarity and applicability of the instrument and to determine the mean time required to complete the questionnaire. No changes were required, so we added the pilot sample to the sample under investigation.

Ethical Considerations:

Ethical approval was obtained from the Institutional Research Review Board (IRRB) of Ibn Sina National University of Health Research. Formal written consent to data collection was obtained once the purpose and objectives of the study were fully clarified. The researcher explains the

purpose of the study, and local approval will be obtained from the responsible school authorities. Then the researcher introduced himself to the students and explained the purpose of the study. Finally, it was ensured that each student had the right to discontinue the study without penalty or to participate anonymously while maintaining the confidentiality of the data collected.

Data collection procedure:

The questionnaire was converted into an online survey. The web-based questionnaire was tested for various internet browsers prior to administration to ensure its robustness. Officially approved by the employees of the relevant authorities. The students who agreed to participate in the study were then interviewed individually according to available time via Zoom meetings at their convenience. The researcher introduced himself to the students and explained the purpose of the study. High school students were selected according to predetermined inclusion criteria. Students were asked to complete Google Form surveys, it took about 10-15 minutes to fill out the survey. Completion of the required data collection phase within five months.

Statistical analysis:

Data was collected, entered, analyzed and presented to achieve the research objectives. Data were analyzed using a licensed version of IBM Statistical Package for the Social Sciences (SPSS) version 22 (Armonk, NY: IBM Corp). Qualitative data were allocated using percentages and numbers. Kolmogorov-Smirnov test is used to check for normal distribution. Quantitative data were determined using a combination of mean (minimum and maximum), standard deviation, and chi-square test was used for qualitative analysis to generate results. Pearson's correlation was used to find associations between different variables. The significance level was adjusted to a p value <0.05, while the high significance level was adjusted to a p value <0.001.

Results

Table (1): Socio-demographic characteristics of the studied sample No.348

Characteristics	N	%	
Age	15< 18	186	53.5%
	18<20	133	38.2%
	20+	29	8.3%
Gender	Male	174	50%
	Female	174	50%
Residence area	Rural	327	94%
	Urban	21	6%
Year of the study	First-year	59	17.1%
	Second year	123	35.5%

	Third year	165	47.5%
Nationality	Saudi	215	61.8%
	Non-Saudi	133	38.2%
Presence of relative works in nursing	Yes	200	57.6%
	No	148	42.4%

Table 1: shows that 53.5% of the studied sample were between 15 and 18 years old. 94.0% of the students were from rural areas, 47.5% of the students were in the third year of secondary school, 61.8% of the studied sample were Saudis, and 57.6% of the students had relatives working in nursing.

Table 2: Distribution of the level of knowledge and attitude regarding nursing profession:

Items		N	%	Mean	Std. Deviation	t-test	P value
Knowledge	Good Knowledge	49	22.26	3.530	33	1.884	0.061
	Average Knowledge	274	78.7%				
	Poor Knowledge	25	7.2%				
Attitude	Positive Attitude	71	23.18	4.170	33		
	Negative Attitude	277	79.7%				

Table 2: Illustrate that 78.7% of the studies sample had the average level of knowledge regarding nursing profession while only 22.26% had a good knowledge related to nursing. Regarding the level of attitude, 79.7% of the students had a negative attitude related to nursing profession. There was no significant correlation between students` attitude and their level of knowledge.

Table 3: Factors that prevent students from being a nurse (No= 348).

Items		Gender				Total		(P-Value)
		Female		Male		N	%	
		N 174	%	N 174	%			
Nursing work is characterized by long day duties and night shift.	Yes	77	44.3%	101	58.1%	178	47%	(0.102)
	No	97	55.7%	73	41.9%	170	53%	
	Yes	18	10.3	57	32.6%	75	14.7%	

Nursing is not an encouraging or enjoyable job	No	156	89.7%	117	67.4%	273	85.3%	(0.000) *
The Character of a nurse is not suitable for me	Yes	54	31%	36	20.9%	90	29%	(0.191)
	No	120	69%	138	79.1%	258	71%	
Nurses are exposed to the risk of infectious diseases	Yes	41	23.6%	36	20.9%	77	23%	(0.714)
	No	133	76.4%	138	79.1%	271	77%	
The bad image of nurses	Yes	28	16.1%	32	18.6%	60	16.6%	(0.692)
	No	146	83.9%	142	81.4%	288	83.4%	
Nursing is an honorable profession	Yes	111	63.8%	129	74.4%	240	65.9%	(0.188)
	No	63	36.2%	45	25.6%	108	34.1%	
Nursing is a challenging profession	Yes	73	42%	53	30.2%	126	39.6%	(0.159)
	No	101	58%	121	69.8%	222	60.4%	
Nursing is a profession that impedes social life	Yes	12	6.9%	8	4.7%	20	6.5%	(0.591)
	No	162	93.1%	166	95.3%	328	93.5%	
Nurses are exposed to a lack of respect from society	Yes	66	37.9%	49	27.9%	115	35.9%	(0.220)
	No	108	62.1%	125	72.1%	233	64.1%	
The personality of the nurse requires obeying the orders of others	Yes	45	25.9%	16	9.3%	61	22.6%	(0.002) *
	No	129	74.1%	158	90.7%	287	77.4%	
Nursing profession targets poor people	Yes	104	59.8%	125	72.1%	229	62.2%	(0.000) *
	No	70	40.2%	49	27.9%	119	37.8%	
Nurses choose this field because they had no opportunities to study in another	Yes	10	5.7%	12	7%	22	6%	(0.761)
	No	164	94.3%	162	93%	326	94%	
Mass media present nurses in a bad view leading to refusing new joining	Yes	101	58%	121	69.8%	222	60.4%	(0.159)
	No	73	42%	53	30.2%	126	39.6%	

Table 3: Illustrated a highly statistical significance regarding the factors that prevent students from being a nurse mainly in the items nursing is not an encouraging or enjoyable job, the personality of the nurse requires obeying the orders of others $p = (0.000, 0.002, \text{respectively})$.

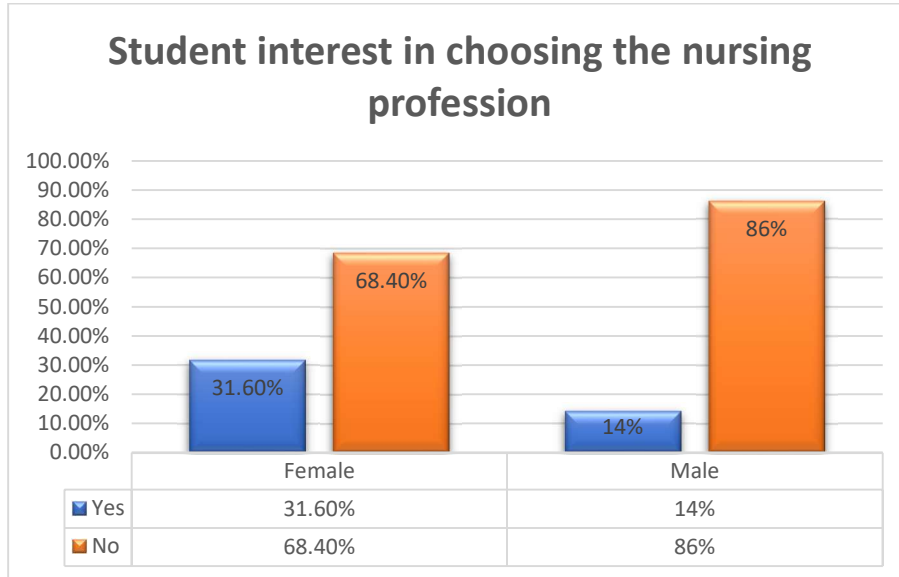


Figure 1: Distribution of student interest in choosing the nursing profession:

Figure (1) showed that female students are more interested in choosing the nursing profession than male students. 86% of male students are not interested in choosing a nursing profession while 14% of them agreed to be a nurse. Regarding the female students opinion, only 31.60% of them agreed to work as nurses, compared to 68.40% who disagreed.

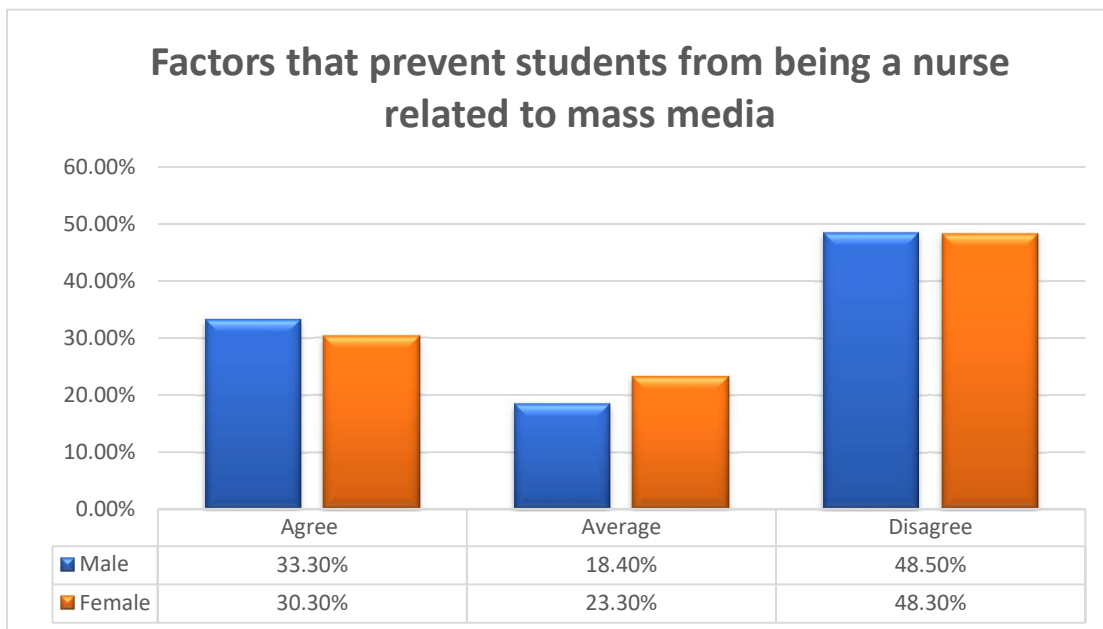


Figure 2: Distribution of the factors that prevent students from being a nurse related to media:

Figure (2) showed the distribution of the factors that prevent students from being a nurse related to the media, 33.3% of the male student agreed that mass media present nurses in a bad view leading to refusing new joining while 48.5% of them disagreed. Regarding the female opinion 30.3% of the female student agreed that mass media present nurses with a bad view leading to refusing new joining while 48.30 % of them disagreed.

Table (4) Correlation between levels of knowledge regarding nursing profession and socio-demographic data:

Model	Unstandardized Coefficients		Standardized Coefficients	t-test	P value
	B	Std. Error	Beta		
Gender	0.159	0.624	0.018	0.255	0.799
Age	0.231	0.434	0.042	0.531	0.596
Residential Area	0.051	1.034	0.003	0.049	0.961
Year of the Study	- 0.488	0.371	- 0.103	- 1.316	0.190
Nationality	- 0.104	0.517	- 0.014	-0.201	0.841
Presence of the relatives work in nursing	- 0.349	0.490	- 0.049	- 0.713	0.477

Table (4): Showed a there is no significant correlation between the students' level of knowledge regarding the nursing profession and all items of sociodemographic characteristics.

Table (5) Correlation between attitude regarding nursing profession and socio-demographic characteristics:

Model	Unstandardized Coefficients		Standardized Coefficients	t-test	P value
	B	Std. Error	Beta		
Gender	1.047	0.682	0.100	1.536	0.126

Age	- 1.726	0.463	- 0.267	- 3.730	0.000*
Residential Area	- 1.905	1.129	- 0.109	- 1.687	0.093
Year of the Study	1.499	0.396	0.268	3.788	0.000*
Nationality	1.569	0.558	0.183	2.811	0.005*
Presence of the relatives work in nursing	0.218	0.539	0.026	0.404	0.687

Table (5): Showed a highly significant correlation between the students' attitude regarding the nursing profession and the sociodemographic characteristics mainly in items of study year, and nationality at $p = (0.000, 0.005$ respectively). There was a negative correlation between age and attitude level of students with p value 0.000. While there was no significant correlation between students' attitude scores and sociodemographic characteristics with respect to gender, residential area, and presence of relatives working in nursing.

Discussion

Nursing is also an important part of the healthcare system, providing essential services such as wound care, medication administration, and patient education. Overall, nursing is an incredibly rewarding profession that has a positive impact on both patients and the community (**Shrestha & Sharma 2021**). Nursing is a noble, progressive, and modern profession. According to the need of the situation from the birth of a child to the dressing of the wounded, the nurse comes with different specialties with high qualifications of doctoral nurses (**Mallah et al.,2020**).

Concerning the socio-demographic characteristics of secondary school students, the current study found that more than half of the studied sample were between the ages of 15 and 18. Most of the students were from rural areas, nearly half of the students were in the third year of high school, two-thirds of the studied sample were Saudis, and more than half of the students had relatives working in nursing. This result is consistent with **Čukljek et al., 2020** who found the majority of the studied sample were between ages of 15 to 18, while it is contradicted by **Shrestha & Sharma 2021** who stated that most of the participants belonged to the age group 14-16 years.

The present study demonstrated that the majority of the studies sample had the average level of knowledge regarding the nursing profession while only almost a fifth of them had a good knowledge related to nursing. This result disagreed with **Hatamleh & Sorio 2017** who reported that female high school student participants generally had a good knowledge of the nursing profession.

Regarding the level of attitude in the current study, the majority of the studied sample had a negative attitude related to the nursing profession. This result is contradicted by **Shrestha & Sharma 2021** who stated that the majority of participants had a positive attitude toward nursing but did not prefer to practice nursing as a profession due to lack of social support, a lack of role models, a lack of respect, and unpleasant work environment. This result also agreed with **Gebrezgabher & Abera 2017**, and **Hatamleh & Sorio 2017** who revealed that secondary school female students had a positive attitude towards nursing will greatly increase students' interest in the profession

The present study demonstrated that there was no significant correlation between students' attitude and their level of knowledge. This result is contradicted by **Maymoun et al.,2020** who illustrated a positive correlation between the level of knowledge and attitude of female high school students. Also, the current result is contrary to **Aly & Omairan 2023** who clarified a highly significant correlation between the level of knowledge and attitudes.

The finding of the current study illustrated that female students are more interested in choosing the nursing profession than male students. The majority of male students are not interested in choosing a nursing profession. Regarding the female student's opinion, only one-third of them agreed to work as nurses. The current study result is similar to **Hatamleh & Sorio 2017** who confirm that about two-thirds of the participants were not interested in studying nursing. Our result also is agreed with **Islam et al., 2020**, and **Rubbi et al., 2017** who stated that high school nursing female students are more interested to be a nurse more than male students.

This result is also supported by **Zhu et al.,2021**, and **Mallah et al.,2020** who confirm that most students choose nursing as an alternative, but not as their first choice. In addition to **Shrestha & Sharma 2021** found only a tenth of the studied sample had the intention of pursuing nursing as a profession. Whereas in the same research, there was a contradiction with our findings regarding the intention to pursue nursing as a profession was significantly more common among male students who had been identified with a nurse and had been exposed to nursing care. This is in agreement with **Shram & Mudgal 2021** who confirmed that recently, more and more males are attracted to nursing.

The current study illustrated a highly statistical significance regarding the factors that prevent students from being a nurse mainly in the items nursing is not an encouraging or enjoyable job, and the personality of the nurse requires obeying the orders of others. This result is supported by **Shrestha & Sharma 2021** who found the majority of students refuse to be a nurse. Global opportunities, challenging careers, and reasonable wages were obvious factors influencing students. However, the lack of social support, lack of a role model, lack of respect, and an unpleasant work environment were major inhibitors. Moreover, **Mallah et al.,2018** revealed the reasons for enrolling in nursing are not the desire to become a nurse, but rather an alternative to not being accepted into medicine.

Contrary to our result **Mallah et al.,2020** revealed that many personal, professional, and financial factors drove students to enroll in nursing. Contrary to our study result **Rodríguez-Pérez al 2020, and Cukljek et al. 2020** showed high disagreement on the item "Nurses don't follow doctor's orders without question." This mirrors Rodríguez-Pérezal 2020, where more than a third of his student sample agreed with the item "Nurses make autonomous decisions about care."

Regarding the factors that prevent students from being a nurse related to the media, one-third of the male participant in the current study agreed that the media presents nurses with a bad view leading to refusing new joining, while roughly half of them disagreed. Regarding the female opinion roughly one-third of the female participants agreed that mass media present nurses with a bad view leading to refusing new joining while nearly half of them disagreed. This result is agreed with **Olubiyi et al., 2020**, and **Rubbi et al., 2017** who sated that regarding high school students, their interest in choosing the nursing profession may be influenced by the media, since their own perception of the nursing image is not closely related to their interest in choosing the nursing profession.

Almost two third of the studied sample disagreed that mass media present nurses with a bad view leading to refusing new joining. From the researcher's point of view, this is because nursing is a highly respected profession in Saudi Arabia, The Saudi government has made significant investments in nursing education and training, and there are now a lot of nursing schools throughout the country. The Saudi government has also implemented several initiatives to improve the quality of nursing care.

The results of the current study showed that there was no statistically significant correlation between the student's level of knowledge regarding the nursing profession and all elements of socio-demographic characteristics such as age, gender, nationality, residential area, year of study, and the presence of relatives' work. in nursing. The result of the current study is consistent with **Devi & Devi 2015** finding that there was no significant association between the knowledge levels of senior secondary students with age or gender. Contrary of our study **Zhu et al.,2021**who found statistically significant correlation between the level of knowledge regarding the nursing profession and gender

The present study clarified that there is a highly significant correlation between the students' attitude regarding the nursing profession and the sociodemographic characteristics mainly in items of study year, and nationality. There was a negative correlation between age and attitude level of students. While there was no significant correlation between students' attitude scores and sociodemographic characteristics with respect to gender, residential area, and presence of relatives working in nursing. This result is consistent with **Devi & Devi 2015** who found no significant correlation between students' attitude levels with age or gender.

The current result is supported by **Sharma et al 2022** who represented that there is no significant association between the perception of the male nursing profession with gender. Whereas in the same research, there was a contradiction with our findings regarding a significant relationship

between age and perception regarding the male nursing profession. On the contrary. On the contrary **Rubbi et al., 2017** clarified that there were positive statistically significant differences between the degrees of attitudes regarding the nursing profession with age and gender among secondary school students. Also, **Olubiyi et al., 2020**, and **Zhu et al., 2021** found statistically significant correlation between the attitude and gender.

Conclusion:

The majority of the studied sample had an average level of knowledge and had a negative attitude related to the nursing profession. There was no significant correlation between students' attitude and their level of knowledge. Female students are more interested in choosing the nursing profession than male students. The current study illustrated a highly statistical significance regarding the factors that prevent students from being a nurse mainly in the items nursing is not an encouraging or enjoyable job, and the personality of the nurse requires obeying the orders of others.

Recommendations:

- A collaboration between the nursing school and high schools can provide opportunities for high school students through early clinical exposure to nursing.
- Websites and social media can serve as a platform for students and their parents to provide information about the nursing profession.
- Create programs developed to provide information about the roles of professional nursing, create an image of nursing, and promote positive attitudes towards the nursing profession to the community.
- The mass media should pay attention to the improvement of people's perceptions of the nursing profession.
- Educate nursing students, particularly those who want to work in the field, about the various levels of nursing, their qualifications, job descriptions, and degrees of education such as masters and doctorate.
- Encourage men to pursue careers in nursing because in Islamic society, the patient prefers to be nursed by someone of the same gender.

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