




Attitudes of Health Care Providers in Relation to Disability, Saudi Arabia

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Abstract

Background Among the main barriers that prevent people with disabilities from seeking help and support are negative attitudes of society in general and health care professionals in particular. However, only a few studies looked into the attitudes of health care providers toward people with disabilities in Saudi Arabia. This study aimed to investigate the attitudes of health care providers in relation to people with disabilities.

Participants and Methods The attitudes toward disabled persons (ATDP) scale was administered among $n = 1,033$ health care providers in the Eastern Province of Saudi Arabia. The data were analyzed using JASP version 19 and Orange 3.26.0. Demographic data were analyzed using dummy encoding.

Results The mean ATDP score for 1,033 respondents was 58.03 ($p = 0.000$). Multiple linear regression analysis showed that respondents aged 24 to 25 years have significantly less positive attitudes, compared to participants aged 18 to 20 years ($p = 0.004$). No sufficient evidence was found whether marital status significantly affects attitudes toward people with disabilities. In contrast, participants with three or more children have a significantly ($p = 0.014$) less positive attitude compared to those who do not have children.

Conclusion This study found that, overall, health care professionals had slightly negative attitudes, according to the ATDP scale. However, younger respondents and those without children were more positive. Future research is recommended to collect more data on the significance of having children and its association with attitudes toward disabilities. More educational programs are recommended that can increase attitudes and awareness about people with disabilities.

Keywords

- ▶ disability
- ▶ attitudes
- ▶ demographic data
- ▶ health care providers
- ▶ Saudi Arabia

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Introduction

Among the main barriers that prevent people with disabilities from seeking help and support are negative attitudes of society in general and health care professionals in particular. These attitudes vary based on factors such as age, sex, occupation, level of education, and general knowledge about disability.¹⁻³ In addition, lack of knowledge, misconceptions about disability, and lack of experience in communicating and treating people with disabilities are often reported as key issues contributing to negative attitudes among health care professionals. However, the relationship between people's attitudes, knowledge, and behavior is complex and is a subject of continuous research.¹⁻³

It has also been reported that professionals in some medical disciplines tend to have a more positive attitude toward people with disabilities compared to other disciplines.⁴ A study by Kim et al showed that medical professionals, who are the main providers of services for people with disabilities, tended to have negative attitudes toward people with disabilities.⁵ However, the more experienced these professionals in working or building relationships with these people, the more positive their attitudes toward them.^{2,4} This allows us to suggest that greater experience and familiarity with disability leads to more positive attitudes toward people with disabilities among health care professionals.⁶⁻⁸ Thus, a study by Thompson et al found that, with proper disability education, health professionals tend to have more positive attitudes toward people with disabilities.⁷ Furthermore, White and Olson found that a collaborative dialog between nurses, physical therapists, and occupational therapists about their philosophy and attitude toward people with disabilities is evidence of support for improved patient care across professions.⁶

Additional factors associated with the perception of disability related to personality traits and sociodemographic characteristics. Thus, females were found to have more positive attitudes than males.^{7,8} However, the data obtained are contradictory. Further evidence shows that competency standards knowledge by health care professionals may reduce the stereotypes and prejudices that they have toward people with disabilities.^{3,9}

While the attitudes of health care providers toward people with disabilities are important, only a few studies looked into these attitudes of health care providers of various occupations toward people with disabilities in Saudi Arabia. Therefore, this study aimed to investigate the attitudes of health care providers in relation to people with disabilities using the attitudes toward disabled persons (ATDP) scale. To the best of the authors' knowledge, this is the first study using this scale in the Eastern Province among health care providers.

Participants and Methods

Study Sample and Instrumentation

This is a cross-sectional study among $n = 1,033$ health care providers from the Eastern Province of Saudi Arabia. The

ATDP scale developed by Yuker et al was administered among the study sample.¹⁰ This is a unidimensional scale that measures attitudes for all disabilities in general. The ATDP Form 0 is a 20-item scale that asks individuals to rate their agreement to each of the 20 statements using a 6-point Likert-type scale. The scale ranges from +3 = I agree very much; +2 = I agree pretty much; and +1 = I agree a little; to -3 = I disagree very much; -2 = I disagree pretty much; and -1 = I disagree a little. Scores range from 0 to 120, with higher scores indicating more accepting attitudes toward persons with disabilities, while lower scores reflect discriminatory or rejecting attitudes. The ATDP is considered a reliable and valid measure with an overall median for the scale of approximately 0.80. Reliability is the same for each of the three forms.

Procedures and Data Collection

The administration of the study was confirmed by the Institutional Review Board of Prince Sultan Military College of Health Sciences (approval no.: IRB-2022-VDPSR-002). Informed consent was obtained from the participants before they filled out the online questionnaire.

Data Analysis

Data collected from the ATDP Form 0 was preprocessed by generating descriptive statistics; this was done in order to check for completeness and validity. The generation of visualizations and analyses were done using JASP version 19 and Orange 3.26.0, respectively. JASP is a free and open-source program for statistical analysis supported by the University of Amsterdam. Orange is also an open-source data visualization, machine learning, and data mining toolkit developed by University of Ljubljana. The demographic profiles of the 1,033 respondents were grouped according to nationality (Saudis and non-Saudis) to highlight differences among the demographics. Multiple linear regression analysis was conducted to identify significant demographic features that explain attitudes toward disabled people. Dummy encoding was done for the categorical features with the following categories as reference groups: male or female for sex; 18 to 20 years old for age, single for marital status, and non-Saudi for nationality. These reference categories will not appear in the output as these will be the bases of comparison for the effects. To highlight the investigation on the possible interaction effects between sex, nationality, and number of children, an analysis of variance (ANOVA) was conducted. A significance level of 0.05 was the basis for the significance in all the analyses.

Results

Demographics of Study Participants

— **Table 1** shows the demographic profile of the respondents. The data were separated into Saudi and non-Saudi participants to show how attitudes can vary with nationality and its relationship to other characteristics. Thus, the majority of Saudi respondents were males ($n = 420$ [54.20%]), while female Saudis accounted for 355 (45.80%) respondents. Among non-Saudis, the majority of participants were

Table 1 Sociodemographic data of participants ($n = 1,033$)

Demographic profile	Saudi		Non-Saudi		Full sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sex						
Female	355	45.8	185	71.7	540	52
Male	420	54.2	73	28.3	493	48
Age (y)						
18–20	160	20.6	8	3.1	168	16.26
21–23	247	31.9	24	9.3	271	26.23
24–25	47	6.1	34	13.2	81	7.8
26–30	158	20.4	82	31.8	240	23.23
31 and older	163	21.0	110	42.6	273	26.43
Marital status						
Divorced	15	1.94	1	0.39	16	1.55
Married	257	33.16	116	44.96	373	36.11
Others	2	0.26	11	4.26	13	1.26
Single	484	62.45	125	48.45	609	58.95
Widowed	17	2.19	5	1.94	22	2.13
Number of children						
0	516	66.6	116	45.0	632	61.18
1	72	9.3	66	25.6	138	13.36
2	66	8.5	40	15.5	106	10.26
3	56	7.2	21	8.1	77	7.45

females at 185 (71.7%) and only 73 (28.3) respondents were males. In terms of age, Saudi respondents have a heterogeneous age distribution, while the majority of non-Saudi respondents were in the ≥ 31 year age group (42.60%). In terms of marital status, the majority of respondents were single; 484 (62.45%) were Saudis and 125 (48.45%) were non-Saudi. In addition, 516 (66.6%) Saudis and 116 (45%) non-Saudi respondents did not have children.

Overall Scores of Attitudes toward Disabled Persons Survey

The overall mean ATDP score for 1,033 respondents is represented by the intercept ($\beta_0 = 58.03$, $p = 0.000$), disregarding the effect of the predictors (\rightarrow **Table 2**). Multiple linear regression analysis was performed to understand and quantify the impact of different demographic characteristics to the attitudes toward people with disabilities. It was found that respondents aged 24 to 25 years have significantly lower average scores ($\beta_{(24-25)} = -7.37$, $p = 0.004$), that is, less positive attitudes, compared to participants aged 18 to 20 years (reference group). No sufficient evidence was found whether marital status significantly affects attitudes toward people with disabilities, as evidenced by high p -values for married ($p = 0.121$), widowed ($p = 0.501$), divorced participants ($p = 0.345$). In contrast to marital status, there is sufficient evidence that more children result in a lower average attitude score. Thus, participants with three or

more children have a significantly ($p = 0.014$) lower mean score of -9.72 (i.e., less positive attitudes) compared to those who do not have children (\rightarrow **Table 2**).

Demographics of Study Participants and Attitudes toward Disabled Persons Survey

The analysis of variance showed significant differences in ATDP scores when the number of children and nationality were considered ($p = 0.002$). Looking at the marginal averages, the average ATDP score for a Saudi woman with more than three children is 44.89 compared to 52.74 for a Saudi male in the same category (\rightarrow **Table 3**).

The marginal means of the ATDP scores showed that Saudi females without children had 4 points higher ATDP scores (64.02) compared to their male counterparts (60.02; \rightarrow **Table 4**). In contrast, Saudi females with more than two children have 10.47 points lower mean (52.30) ATDP scores than males (62.77). This suggests that Saudi female health care providers without children have more positive attitudes toward people with disabilities compared to females who have more than two children. While males who have no children showed more positive attitudes compared to males who have children. The marginal means of the ATDP scores for non-Saudi health care providers showed that females with more than three children had less positive attitudes toward people with disabilities compared (58.33) compared to non-Saudi males (62.67). The comparison of scores between Saudi and non-

Table 2 Regression analysis: ATDP scores and demographic profile

Effect	Estimate	SE	95% CI		p
			LL	UL	
Intercept (the mean ATDP score)	58.0300	1.770	54.561	61.499	0.000 ^a
Sex (male)	-1.2344	1.078	-3.347	0.879	0.252
21–23 y	2.0397	1.629	-1.153	5.232	0.210
24–25 y	-7.3740	2.559	-12.389	-2.359	0.004 ^a
26–30 y	-1.0231	1.966	-4.877	2.831	0.603
31 y and older	3.6527	2.124	-0.511	7.816	0.086
Marital status_M	-2.4864	1.602	-5.627	0.654	0.121
Marital status_W	-2.6600	3.952	-10.405	5.085	0.501
Marital status_D	-5.1804	5.482	-15.925	5.564	0.345
Number of children_1	2.1124	1.627	0.194	-1.076	5.301
Number of children_2	1.4382	1.984	-2.451	5.327	0.469
Number of children_ > 3	-9.7203	2.393	-14.411	-5.030	0.000 ^a
Nationality (Saudi)	3.3548	1.368	0.673	6.036	0.014 ^b

Abbreviations: ATDP, attitudes toward disabled persons; CI, confidence interval; LL, lower limit; SE, standard error; UL, upper limit.

Note. Number of observations = 1,033.

^aSignificant at 0.05 level.

^bSignificant at 0.01 level.

Table 3 Analysis of variance

Cases	Sum of squares	df	Mean square	F	p
Sex	26.11	1	26.11	0.095	0.758
No. of children	1,274.4	4	318.6	1.164	0.325
Nationality	46.64	1	46.64	0.17	0.68
Sex * no. of children	1,614.31	4	403.58	1.474	0.208
Sex * nationality	300.23	1	300.23	1.097	0.295
No. of children * nationality	4,827.92	4	1,206.98	4.408	0.002 ^a
Sex * no. of children * nationality	1,454.96	4	363.74	1.329	0.257
Residual	277,352	1,013	273.79		

Note: Type III sum of squares.

^aSignificant at 0.01 level.

Saudi health care providers showed that Saudi females (64.02) and males (60.02) who have no children had more positive attitudes toward people with disabilities compared to non-Saudi females (55.51) and males (53.8).

Association of Gender and Children with Attitudes toward Disabled Persons Survey

The $2 \times 5 \times 2$ factorial analysis of variance by observing the effect of sex on ATDP scores depending on nationality and number of children showed a significant difference between the ATDP scores of Saudi males and females without children ($p = 0.006$) and those with two children ($p = 0.015$; ► **Table 5**).

Findings show a significant reduction in the mean ATDP scores for female Saudis with two children compared to

those without children. These support the findings in the regression analysis that a higher number of children results in a lower mean score in attitude toward disabled people. The reduction is more evident in the case of Saudi females, as shown in ► **Fig. 1**.

Discussion

Since health care providers are among the first to contact people with disabilities, their attitude can be important in shaping a response to treatment, rehabilitation outcomes, reintegration into society, and self-esteem of people with disabilities. Therefore, this study aimed to investigate the attitudes of health care providers in relation to people with

Table 4 Marginal means (nationality, sex, and number of children)

Sex	No. of children	Nationality	Marginal mean	SE	Lower CI	Upper CI	
Female	More than three	Non-Saudi	58.33	5.516	47.51	69.16	
		Saudi	44.89	2.684	39.63	50.16	
	None	Non-Saudi	55.51	1.839	51.9	59.11	
		Saudi	64.02	1.066	61.93	66.12	
	One	Non-Saudi	58.29	2.295	53.79	62.79	
		Saudi	59.19	3.184	52.94	65.43	
	Three	Non-Saudi	56.93	4.272	48.55	65.32	
		Saudi	58.96	3.245	52.59	65.33	
	Two	Non-Saudi	62.57	3.127	56.44	68.71	
		Saudi	52.3	3.45	45.53	59.07	
	Male	More than three	Non-Saudi	62.67	6.755	49.41	75.92
			Saudi	52.74	3.184	46.49	58.99
None		Non-Saudi	53.8	2.797	48.31	59.29	
		Saudi	60.02	0.998	58.06	61.98	
One		Non-Saudi	58.21	4.422	49.54	66.89	
		Saudi	62.93	2.467	58.09	67.77	
Three		Non-Saudi	53.17	6.755	39.91	66.42	
		Saudi	52.3	3.021	46.37	58.23	
Two		Non-Saudi	57.58	4.777	48.21	66.96	
		Saudi	62.77	2.523	57.82	67.72	

Abbreviations: CI, confidence interval; SE, standard error.

Table 5 Simple main effects (sex) for $2 \times 5 \times 2$ factorial analysis of variance (ANOVA)

Level of no. of children	Level of nationality	Sum of squares	df	Mean square	F	p
More than three	Non-Saudi	67.6	1	67.6	0.247	0.619
	Saudi	971.697	1	971.697	3.549	0.06
None	Non-Saudi	71.144	1	71.144	0.26	0.61
	Saudi	2,061.944	1	2,061.944	7.531	0.006*
One	Non-Saudi	0.061	1	0.061	2.217e-4	0.988
	Saudi	237.07	1	237.07	0.866	0.352
Three	Non-Saudi	60.805	1	60.805	0.222	0.638
	Saudi	618.096	1	618.096	2.258	0.133
Two	Non-Saudi	209.001	1	209.001	0.763	0.382
	Saudi	1,640.486	1	1,640.486	5.992	0.015**

*Significant at 0.01 level.

**Significant at 0.05 level.

disabilities using the ATDP scale in Saudi Arabia. Several important conclusions may be drawn from the results of this study.

The survey results highlighted slightly negative attitudes toward people with disabilities among health care providers. The mean ATDP score for the respondents in this study was found to be 58.0300 ($p = 0.000$), which is slightly lower than the normative score of 60 for Form 0 presented by Yucker

et al.¹⁰ This finding was consistent with the earlier study among Pakistani health care providers who had a more negative attitude toward people with disabilities.¹¹ Similarly, a study among Nepalese health care providers reported that the mean ATDP score Form B was found to be significantly lower (78.5) than the normative score of 113 presented by Yucker et al.¹⁰ Furthermore, Bhutanese doctors and nurses showed less positive attitudes toward people with

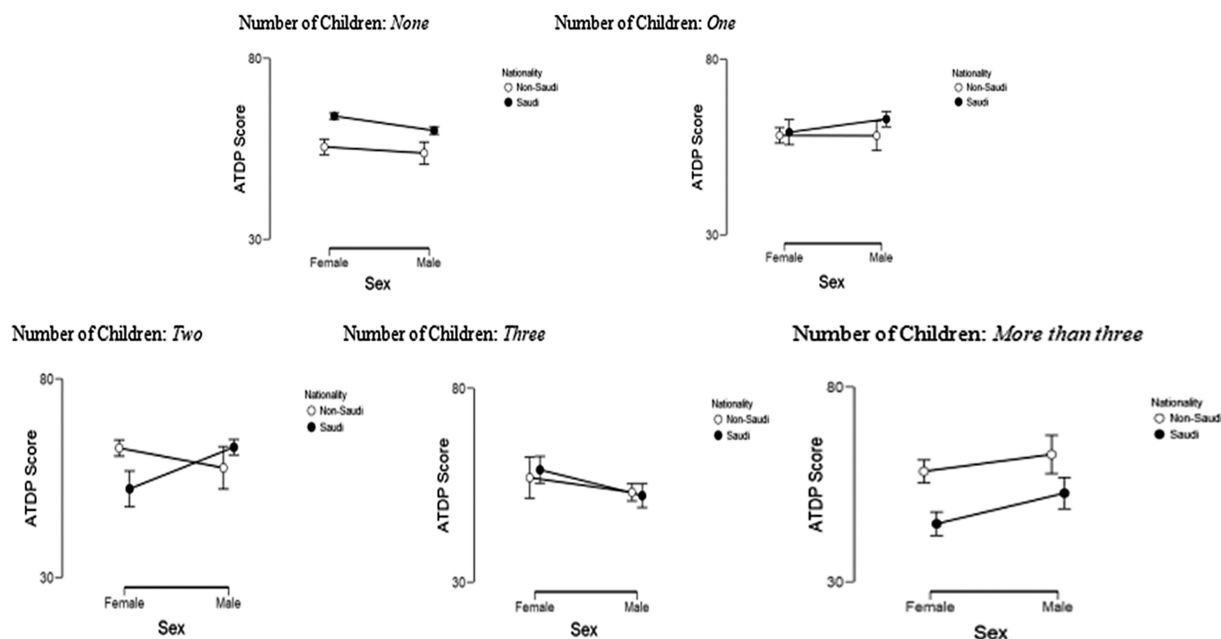


Fig. 1 Attitudes toward disabled persons (ATDP) scores across sex, nationality, and number of children.

disabilities.¹² A secondary analysis of attitudes toward disability among 25,006 health care providers found that most providers were implicitly biased toward people with disabilities.³ This consistency in data suggests that recognizing, understanding, and ultimately eliminating factors that lead to negative attitudes toward people with disabilities should be considered a critical goal of governments and health care organizations, including Saudi Arabia.¹³ Since some factors related to the attitudes of health professionals toward people with disabilities are potentially modifiable (e.g., knowledge and experience), educational activities can increase their knowledge, while regular contact can potentially influence their attitudes.³ This approach will allow health care providers to go beyond the curricula being studied in the form of stereotyped experiences of disability by offering a real communication experience of dealing with people with disabilities.

The effect of age on attitudes toward people with disabilities has been the subject of continuous debates and research. In this research, multiple linear regression analysis for different demographic characteristics of people with disabilities showed that respondents aged 24 to 25 years have significantly lower positive attitudes ($p = 0.004$) than participants aged 18 to 20 years (reference group). Similarly, VanPuymbrouck et al ran a linear regression model to examine the relationship between health care providers' demographic variables and their explicit attitudes toward disability.³ The model was significant ($p < 0.001$), demonstrating that age correlates with overt prejudice, with higher prejudice values occurring in older providers.

The finding was consistent with data reported for the Nepalese health care providers, where younger respondents had more positive attitudes toward people with disabilities than the older providers.⁹ At the same time, evidence suggests that having more professional experience was

associated with more favorable attitudes.^{14,15} For example, a study conducted among Canadian health care professionals found that younger participants were more likely to view people with intellectual disabilities as similar to themselves and that they should take control of their lives. Conversely, the older participants were more likely to believe that people with intellectual disabilities are vulnerable.¹⁵

These results show that there may be differences in attitudes toward people due to generational change and attitudes toward disability both in Saudi Arabia and around the world. In 2008, Saudi Arabia signed and ratified the convention on the rights of persons with disabilities, and its Protocol Article 24 of the convention calls to ensure an inclusive education.^{16,17} Given the inclusive approach in the education system, younger generations often contact people with disabilities, which reduces stigma and negative attitudes toward people with disabilities. As a result, as future health care providers, they are more likely to treat people with disabilities by accepting them as equals positively.

Further analysis of these research data showed no sufficient evidence whether marital status significantly affects attitudes toward people with disabilities, consistent with Zheng et al and Kılıç and Çıtlı, who found the marital status of the participants did not have a significant effect on the attitudes.^{18,19} However, this finding was contradictory with findings by Çavdar et al, who reported the attitudes of single individuals toward disabled individuals was more favorable than married individuals.²⁰

In comparison to marital status, this research showed that the number of children is significantly associated with the attitudes toward people with disabilities. As such, participants with three or more children have a significantly ($p = 0.014$) lower mean score of -9.72 (i.e., less positive attitudes) compared to those who do not have children. The theory about the development of intergroup attitudes

considers parents as the most important agents of early childhood socialization.²¹ As the primary agent of socialization, parents can directly or indirectly influence children by providing an opportunity to interact with peers who have certain characteristics. In addition, research has shown that interacting with people with disabilities can help children develop positive attitudes toward those people.²² However, only a few studies have attempted to explore the links between parent-child attitudes toward people with disabilities; almost none have looked at whether the number of children affects parents' attitudes toward people with disabilities, among either health care providers or the general public.¹⁹⁻²²

Long-term research has revealed significant differences in the attitudes of people of different ethnic groups toward people with disabilities.²³⁻²⁵ Therefore, when investigating demographic data in relation to the ATDP survey, an analysis of the attitudes of Saudis and non-Saudis was conducted. The results showed that Saudi female health care providers without children had more positive attitudes toward people with disabilities compared to Saudi females with more than two children. At the same time, males without children showed a more positive attitude compared to males who have children. Further to this, non-Saudi females with more than three children had less positive attitudes toward people with disabilities compared to non-Saudi males. A comparison between Saudi and non-Saudi health professionals found that Saudi females and males without children had more positive attitudes toward people with disabilities compared to non-Saudi females and males. An earlier study among university students found that Asian American participants were more likely to stigmatize and less likely to differentiate between people with physical and mental disabilities than their African American, Hispanic, or European-American counterparts. On the other hand, a comparison of U.S.-born Asian Americans with Asian Americans found that Asian-born participants were more likely to stigmatize disability in general than U.S.-born participants, presumably due to levels of assimilation.²⁴ The current study, on the other hand, looked at Saudi and non-Saudi Arabian participants, without any specific differentiation of nations. However, this finding does support earlier suggestions that cultural and ethnic differences may have health and psychosocial implications for health care providers toward people with disabilities, with more positive attitudes expressed toward people of the same ethnicity or culture.^{25,26}

To the best of the authors' knowledge, this is the first research in Saudi Arabia that used the ATDP scale to investigate the attitudes of health care providers in relation to people with disabilities. Furthermore, unlike similar studies in the literature, researchers included not only physicians and nurses but also almost all professional groups providing health services. While marital status was not significantly associated with positive or negative attitudes, the number of children was a significant factor along with age, with younger participants having more positive attitudes. Future research is recommended both within Saudi society and internationally to collect more

data on the significance of having children and its association with attitudes toward people with disabilities. In addition, more qualitative research is recommended to explore the attitudes of different generations of health care providers. This approach will outline a bigger picture of what is known and where the gap is.

Conclusion

Compared to the general population, people with disabilities are more likely to seek medical care and require medical attention. Therefore, the attitude of health care professionals toward people with disabilities is of great importance. This study found that, overall, health care professionals had slightly negative attitudes, according to the ATDP scale. However, younger respondents and those without children had a more positive attitude. In order to further develop positive attitudes of health professionals towards people with disabilities in Saudi Arabia, it is recommended to implement more educational programs on awareness about people with disabilities, particularly among medical professionals who are 24-25 years old, non-Saudi, or have more than two children.

Authors' Contributions

A.W. was responsible for conceptualization, design, and interpretation of data; drafting the manuscript; and revising for important intellectual content. N.J. was responsible for the methodology, validation, and revising the manuscript for important intellectual content. L.H.Al-J. was responsible for data collection, validation, and drafting the manuscript. J.B. was responsible for data curation, design, methodology, and revising the manuscript for important intellectual content. E.M.Al.Z. was responsible for the methodology, data collection, and revising the manuscript for important intellectual content. R.Y.Al-A. was responsible for data curation, interpretation of data, and project supervision. S.H.Q. was responsible for the methodology, interpretation of data, and drafting the manuscript. All the authors participated sufficiently in the work to take public responsibility for appropriate portions of the content and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Compliance with Ethical Principles

The administration of the study was confirmed by the Institutional Review Board of Prince Sultan Military College of Health Sciences (approval no.: IRB-2022-VDPSR-002). Informed consent was obtained from the participants before they filled out the online questionnaire.

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None.

Conflict of Interest

None declared.

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