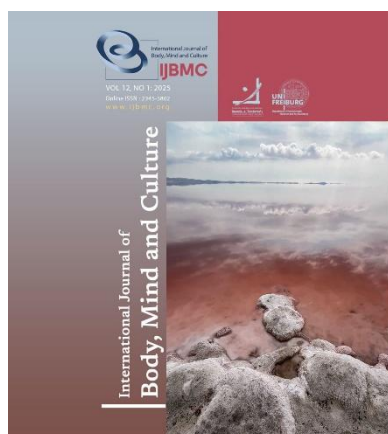


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# Effectiveness of Health Protection Attitudes in Disease Prevention Among Nursing Students in Baghdad

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## ABSTRACT

**Objective:** This study delves into the impact of health protection attitudes on disease prevention among nursing students in Baghdad, examining the association between socio-demographic variables (SDCv and SES) and attitudes toward health management and disease avoidance.

**Methods and Materials:** A non-probability sampling method was used to survey 150 nursing students from various academic years at the Nursing College, Baghdad. The comprehensive questionnaire, validated for its reliability and validity (Cronbach's alpha), included positive and negative attitudinal items related to health protection and disease prevention alongside demographic details.

**Findings:** The findings shed light on the fact that most students hold favorable attitudes towards health protection and disease prevention, with significant gender-based differences in attitudes towards disease prevention. Additionally, regression analysis underscored a significant predictive relationship between health protection attitudes and effective disease prevention.

**Conclusion:** These results underscore the urgent need for targeted health education programs at the university level, emphasizing critical health protection and disease prevention issues. The findings offer hope for the successful development and implementation of such programs, potentially benefiting other student populations in diverse scientific disciplines.

**Keywords:** Health Protection Attitudes, Disease Prevention, Nursing Students, Socio-Demographic.

## Introduction

In the global healthcare landscape, nursing students hold a unique and pivotal role. They are not only the future healthcare providers but also the primary agents in infection control within healthcare settings. Their role is crucial in preventing the transmission of healthcare-associated infections (HAIs), which pose significant public health challenges by increasing morbidity, mortality, and healthcare costs (Choi & Jeon; Dias et al.; Labrague, 2021). The key elements of career well-being, such as emotional stability, positive interpersonal relationships, and a sense of purpose, are crucial in fostering individuals' overall health and resilience. These elements contribute to career satisfaction and enhance broader health protection behaviors by promoting mental and physical well-being. The transmission of communicable diseases, whether direct, vector-assisted, or otherwise, extends beyond mere patient-to-patient interactions, highlighting the broader and complex scope of infectious disease management (Aloufi et al., 2021; Hosseini & Taghvaei; Yalçın & Baykal).

Nursing students are integral to implementing health protection and disease prevention strategies due to their extensive direct contact with patients and exposure to potentially infectious agents during clinical training. These measures are vital in curtailing the spread of infections and enhancing patient and healthcare worker safety (Kim & Park). Despite the importance of these practices, studies have shown that hospital-acquired infections remain a considerable issue, with estimates suggesting that one in every twenty hospital patients will acquire an HAI, underscoring the risks to patients and healthcare workers alike, including nursing students (Alnofea et al., 2018; Kamate et al., 2020; Kim & Park).

While acknowledging the significance of infection prevention, the current literature often lacks depth in exploring the specific attitudes of nursing students toward health protection and their direct impact on disease prevention outcomes. Moreover, recent references are scant, and the research problem is not framed, necessitating a more robust review and precise definition of research objectives (Romero-Collado et al.).

This study aims to bridge these gaps by comprehensively analyzing nursing students' attitudes toward health protection and disease prevention. It seeks to elucidate the correlations between these

attitudes and various socio-demographic factors, such as age, gender, and socio-economic status, to understand better how these elements influence health outcomes. This, the objectives of this study are:

1. To critically assess the attitudes of nursing students in Baghdad towards health protection and their efficacy in disease prevention.
2. To determine the correlation between nursing students' attitudes and socio-demographic factors, including age, gender, and socio-economic status.
3. To analyze the impact of these attitudes on preventing hospital-acquired infections, thereby contributing to safer healthcare environments.

## Methods and Materials

### *Study Design and Participants*

This research employed a cross-sectional descriptive study design to assess nursing students' attitudes toward health protection and disease prevention at the University of Baghdad. The study was conducted over a period from May 2022 to June 2023. The study occurred at the Nursing College of the University of Baghdad, where students from various academic stages were surveyed to view attitudes across different levels of nursing education comprehensively. Using a stratified sampling technique, a sample of 150 nursing students was chosen to ensure a representative distribution across different year levels and specialties within the college. This method was selected to minimize sampling bias and enhance the generalizability of the study findings. The sample size was calculated based on the expected prevalence of positive attitudes toward health protection, a confidence level of 95%, and a 5% margin of error. Data collection occurred between March 2021 and May 2021. Participants completed the questionnaires in a controlled environment within the nursing college to ensure privacy and reduce the risk of data contamination. Researchers were available to clarify any questions during the data collection process, ensuring the thoroughness and reliability of the study's methods.

### Data Collection Tools

The questionnaire was developed through a comprehensive review of existing literature and input from experts in nursing education and public health. It consisted of socio-demographic characteristics, attitudes toward health protection, and attitudes toward disease prevention. The questionnaire underwent a rigorous validation process, including pilot testing on a small cohort outside the study sample to assess clarity and relevance. Reliability testing yielded a Cronbach's alpha of 0.87, indicating high internal consistency.

### Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 22. Descriptive statistics were used to summarize the demographic characteristics and attitudes of the students. Inferential statistics, including chi-square tests for categorical variables and t-tests for continuous variables, were employed to examine the relationships between

students' attitudes and their demographic factors. Multiple regression analysis was conducted to determine the predictive power of health protection attitudes on the effectiveness of disease prevention measures. The selection of statistical tests was guided by the nature of the data and the specific objectives of the study, ensuring appropriate analysis techniques were applied to address the research questions effectively.

### Findings and Results

Table 1 indicates that approximately half of the students were males, 81(54%), and 69(46%) were females, the majority of them in the age group 20 - 24 years 107 (71.3%). Regarding the participant grade, 37 (24.7%) were from grade 1st class, 29 (19.3%) were from grade 2nd class, 31 (20.7%) were from grade 3rd class, and 53 (35.3%) were from grade 4th class. Among the participants, 150 (89.3%) had an average family economic status.

**Table 1**

*Socio-Demographic Characteristic (SDCv.) of Studied Sample.*

SDCv.	Groups	No.	%	C.S.
Gender	Male	81	54	Binomial test P=0.369 (NS)
	Female	69	46	
	Total	150	100	
Age Groups	< 20 yrs.	36	24	$\chi^2= 105.88$ P=0.000 (HS)
	20 - 24 yrs.	107	71.3	
	> 25 yrs.	7	4.7	
	Total	150	100	
Grade	1st - class	37	24.7	$\chi^2= 9.467$ P=0.024 (S)
	2nd - class	29	19.3	
	3rd - class	31	20.7	
	4th - class	53	35.3	
	Total	150	100	
Economic status	Low	9	6	$\chi^2= 211.72$ P=0.000 (HS)
	Average	134	89.3	
	High	7	4.7	
	Total	150	100	

(<sup>o</sup>)HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non-Sig. At P>0.05, Testing is based on One-Sample Chi-Square and Binomial tests.

Table 2 gives a summary of studied sample responses for studied items of attitudes toward health protection according to estimates: mean of the score, standard

deviation, relative sufficiency, and lastly, three dichotomous responses low, moderate, and high evaluation related to relative sufficiency intervals (33.3 -

55.5) (55.6-77.5), and (77.6 -100) respectively. It could be detected that the student's responses to "Collegian student's Attitudes toward health protection" items in light of detected responses with the positive part show "high" evaluation since their relative sufficiency has an upper cutoff point. They accounted for 11(100.0%),

followed by a negative part, which shows that 5 (50%) have a "high" evaluation, and the leftover items are reported to have a moderate evaluation. Finally, an overall evaluation of attitudes toward health protection was recorded as high, with relative sufficiency (86.2%).

**Table 2**

*Students' Attitudes Toward Health Protection.*

Attitudes toward Health Protection		MS	SD	RS	Ev.
				%	
Positive	I think that smoking leads to cancer and chronic diseases	2.86	0.4	95.3	H
Part	I think that health maintenance can be obtained from good nutrition	2.81	0.51	93.7	H
	I think that health maintenance can be obtained by physical exercise	2.91	0.35	97.0	H
	I think that health maintenance can be obtained by rotation examination of the body of a human	2.71	0.59	90.3	H
	I think that healthy nutrition leads to a healthy body and a good mind	2.89	0.41	96.3	H
	I think health is body balance, mental, psychological, social, and spiritual, and not merely the absence of disabilities	2.73	0.53	91.0	H
	I think that alcohol and sedative drugs intake cause malnutrition and immune deficiency	2.76	0.49	92.0	H
	I think that addiction to alcohol and sedative drugs leads to physical, social, and economic adverse effects.	2.81	0.51	93.7	H
	I think that there is a relationship between diseases and heredity factors	2.71	0.51	90.3	H
	I think that a rotational visit to the doctor is necessary for health maintenance in general	2.72	0.51	90.7	H
	I think that personal hygiene contributes to decreasing disease happen	2.74	0.6	91.3	H
Negative	I think the physiological, social, and economic factors do not have effects on body health status	1.85	0.92	61.7	M
Part	I think that alcohol and sedative drugs intake decreases the effects of psychological and social problems	1.62	0.81	54.0	H
	I think that it is not necessary to have an obligation to the main meals	1.7	0.83	56.7	M
	I think that medical consultation before drug intake does not result in positive health for the body	1.48	0.76	49.3	H
	I think that weight monthly and monitoring the increase or decrease in body weight do not affect body health	1.79	0.89	59.7	M
	I think that relaxation and sleeping and avoidance of psychological stress, agitation, and intention are not important for body health protection	1.49	0.78	49.7	H
	I think that experiences of spiritual idolization and beliefs have unhealthy effects on the body	1.77	1.12	59.0	M
	I think that milk, fruits, vegetables, corn flacks and egg intake mainly not advantageous for teeth	1.34	0.65	44.7	H
	I think that hand washing with water and soap after the use of the WC and before food intake does not prevent diseases	1.69	0.9	56.3	M
	I think that early pregnancy does not have negative effects	1.61	0.73	53.7	H
Students Attitudes Toward Health Protection		2.59	0.31	86.2	H

MS = Mean of Score, SD = Standard deviation, RS% = Relative Sufficiency, EV. = Evaluation with three dichotomous answers (Low, Moderate, and High), associated to relative sufficiency intervals respectively "(33.33-55.5) (55.55-77.77), and (77.77-100)". Red color items assigned that a reversed evaluation are obtained if the RS% value is given negatively.

The preceding results suggest that the studied subjects' responses to the positive and negative aspects of their attitudes toward health protection are excellent.

**Table 3**

*Students' Attitudes Toward Diseases Prevention.*

Attitudes Toward Disease Prevention		MS	SD	RS%	E
					v.
Positive Part	I think that vaccination is not necessary for adults, but it is necessary for children	1.87	0.85	62.3	M
	I think that smoking decreases human beings age by about (5-15) years	2.46	0.62	82.0	H
	I think that water intake that is not supplied for drinking leads to exposure to communicable diseases	2.79	0.46	93.0	H
	I think that primary prevention from diseases is the prevention of disease by vaccination and good nutrition	2.72	0.59	90.7	H
	I think that secondary prevention from diseases can be across primary health care centers to diagnosis and treatment for preventing complication	2.74	0.52	91.3	H
	I think that tertiary prevention of diseases is by lessening the complications of diseases that might be disability or handicaps.	2.6	0.57	86.7	H
Negative Part	I think that health maintenance can be gained by bad habits such as (drinking alcohol and smoking)	2.8	0.52	93.3	L
	I think that diseases such as hepatitis and HIV can be transferred by kissing	2.34	0.76	78.0	L
	I think that mental diseases are a social stigma	1.53	0.77	51.0	H
	I think that public prescriptions are more effective than medical prescriptions	1.83	0.75	61.0	M
	I think that fatty food intake does not influence health	1.51	0.79	50.3	H
	I think that the use of sedative drugs does not lead to addiction	1.46	0.72	48.7	H
	I think that vaccinations are not necessary to prevent communicable diseases	1.49	0.74	49.7	H
	I think that it is not important and necessary to do medical investigations before marriage	1.45	0.8	48.3	H
	I think that food source, environmental pollution, populousness, and direct contact with infected patients are factors that do not lead to communicable diseases	1.51	0.77	50.3	H
	I think that fever, cough, itching, weakness, loss of appetite, vomiting, and diarrhea are symptoms that have no relationship with infectious and communicable diseases	1.68	0.81	56.0	M
	I think that a deficiency in personal hygiene from infected stool does not lead to urinary tract infections	1.62	0.79	54.0	H
	I think illegal sexual experience does not lead to exposure to sexually transmitted diseases.	1.51	0.8	50.3	H
	I think that tattooing on the body has no negative effect on health	1.72	0.8	57.3	M
	students' Attitudes toward Disease Prevention	2.35	0.32	78.5	H

MS = Mean of Score, SD = Standard deviation, RS% = Relative Sufficiency, EV. = Evaluation with three dichotomous answers (Low, Moderate, and High), associated to relative sufficiency intervals respectively "(33.33-55.5) (55.55-77.77), and (77.77-100)". Red color items assigned that a reversed evaluation are obtained if the RS% value is given negatively.

It could be observed that the subject's responses to "Collegian student's Attitudes toward disease prevention" items in light of observed responses with the positive part show that most items have a "high" evaluation since their relative sufficiency has an upper cutoff point, and

they are accounted 5(83.3%), then followed with a negative part, which shows that 8(61.5%) of having "high," evaluation and leftover items are reported moderate evaluation with 3(23.1%), and low evaluation with 2(15.4%). Finally, an overall evaluation of attitudes

toward health prevention was recorded as high, with relative sufficiency (78.5%). From the preceding results, it could be concluded that the subjects studied,

concerning the positive and negative aspects of their attitudes toward health prevention, seem to be good due to their responses.

**Table 4**

*Relationships Between General Attitudes Toward Health Protection - Diseases Prevention and Socio-Demographic CharacteristicsParameters*

Parameters	Socio-Demographic Characteristic	Causes Correlation ships		
		C.C.	Sig.	C.S. (*)
students' Attitudes toward Health Protection	Gender	0.096	0.235	NS
	Age Groups	0.159	0.142	NS
	Economic Status	0.064	0.734	NS
	Grade	0.197	0.109	NS
students' Attitudes toward Disease Prevention	Gender	0.222	0.005	HS
	Age Groups	0.160	0.138	NS
	Economic Status	0.182	0.076	NS
	Grade	0.211	0.071	NS

HS: Highly Sig. at  $P < 0.01$ ; NS: Non-Sig. At  $P > 0.05$ , Testing based on a Contingency Coefficient

Table 4 indicates no significant relationship exists between students' attitudes and socio-demographic characteristics, except that gender has a highly

significant relationship with students' attitudes toward disease prevention at  $P < 0.01$  in favor of women by female responses were better than male.

**Figure 1**

*Long-term trend plot for the impact of nursing students' attitudes toward health protection on disease prevention*

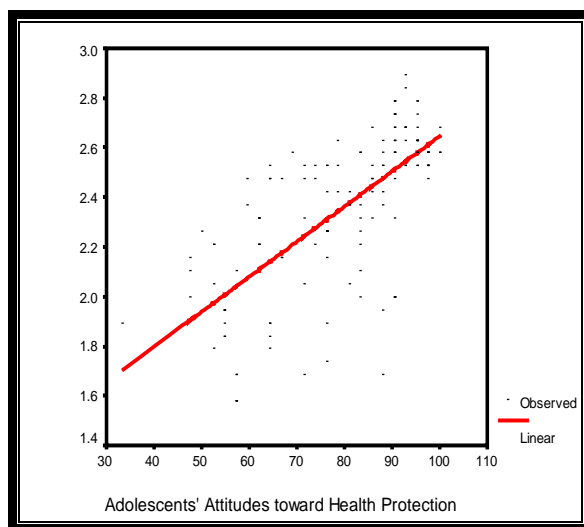


Figure 1 shows the long-term trend of the cause's correlation between health protection and disease prevention of nursing students.

**Discussion and Conclusion**

This study sought to elucidate nursing students' attitudes towards health protection and disease prevention in Baghdad, revealing a generally positive disposition towards these crucial aspects of healthcare.

While the results align with previous studies indicating the significance of proactive attitudes in reducing the incidence of healthcare-associated infections (HCAIs) (Kamate et al., 2020), our findings extend this understanding by correlating specific socio-demographic variables with these attitudes.

A notable observation from our analysis was the impact of gender on attitudes toward disease prevention, with female students displaying more favorable attitudes than their male counterparts. This finding is

consistent with research conducted in similar educational settings (Blake et al.), suggesting a potential gender influence on perception and practices related to health safety among nursing students. The robust positive attitudes across the sample underscore the importance of targeted educational strategies that address and harness these attitudes for improved health outcomes.

However, the study was not without limitations. Using a non-probability sampling method may limit the generalizability of the results to all nursing students in Baghdad or elsewhere. Additionally, the reliance on self-reported data could introduce bias, as participants might provide socially desirable answers rather than accurate descriptions of their attitudes. Despite these limitations, the study provides valuable insights into the role of educational interventions in shaping nursing students' attitudes toward health protection. It underscores the need for comprehensive training programs focusing on theoretical knowledge and practical applications in real-world healthcare settings.

The study conclusively demonstrates a significant correlation between the positive attitudes of nursing students toward health protection and effective disease prevention, highlighting the critical role of educational strategies in enhancing these attitudes. Our research contributes to the broader field of healthcare education by identifying key factors that influence these attitudes and suggesting the integration of specialized training modules that emphasize both the theoretical and practical aspects of infection control. Moreover, the findings advocate for policy changes in nursing curricula to include more extensive training on infection prevention and control tailored to meet the specific needs of different student demographics. For future research, exploring the long-term effects of these educational interventions on professional practices post-graduation could provide deeper insights into the sustained impact of education on healthcare outcomes. In summary, by enhancing our understanding of the factors influencing nursing students' attitudes toward health protection, this study paves the way for more effective educational frameworks that can significantly reduce the incidence of HAIs and improve overall patient safety in healthcare settings.

### Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

### Declaration of Interest

The authors of this article declared no conflict of interest.

### Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical Considerations: This study was conducted with the utmost respect for ethical guidelines. Ethical approval was obtained from the institutional review board at the University of Baghdad. Informed consent was secured from all participants, who were assured of their anonymity and the confidentiality of their responses. Participants were informed about the purpose of the study and their voluntary nature of participation, with the option to withdraw at any time without penalty.

### Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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### Authors' Contributions

All authors equally contributed to this study.

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