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RESEARCH ARTICLE

Evaluation of Nurses' Knowledge and Attitudes towards Older Adults and Associated Factors

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Abstract:

Background:

Due to the increased risk of developing chronic diseases among older adults, their demand for health care has increased. Preparing nurses to care for the older adults is one of the most difficult challenges in nursing education.

Objective:

This study investigated nurses' knowledge and attitudes towards older adults and demographic and occupational features that affect them.

Methods:

This cross-sectional study was conducted on 412 participants from July to October 2020. Patients were selected using a random sampling method. Three questionnaires were used: a socio-demographic form, an Older Patient in Acute Care Survey, and a Knowledge about Older Patients-Quiz.

Results:

According to the Pearson correlation test, there is a statistically significant and positive correlation between knowledge and general opinion (P = 0.000), (r = 0.271) as well as between practice experiences and general opinion (P = 0.000), (r = 0.205) of nurses about older adult's care. There was no statistically significant relationship between knowledge and practice experiences (P = 0.857), (r = -. 009).

Conclusion:

Having a better understanding of the needs of the older adults would improve the quality of care that nurses provide to them.

Keywords: Nursing knowledge, General opinion, Practice experiences, Older adults, Nursing attitudes,, Nursing education.

1. INTRODUCTION

One of the world's major concerns is the growth of the older population, which is more prevalent in low- and middle-income countries [1]. The World Health Organization (WHO) considers people aged over 60 as older people and assumes three sub-periods such as young-old (60-74 years old), old (75-90 years old), and oldest (> 90 years old) [2]. There will be two billion older adults in the world by 2050, with 80 percent of them living in developing countries [3].

Older adults are at a greater risk of developing chronic diseases, which has increased the demand for health care [4]. Older adults make up the majority of patients admitted to most hospitals, and nurses' capacity to meet their physical, mental, and emotional needs depend on their knowledge, skills, and attitudes towards older adults [5]. Preparing nurses to care for the older population is one of the most difficult challenges in nursing education [6]. Studies suggest that patients benefit from nurses who have more knowledge, adequate expertise, and a positive attitude toward older adults, leading to shorter hospital stays and lower readmission rates for patients [7]. Research shows that many nurses have negative attitudes toward the care of older adults, which lead to unfavorable

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measures and inadequate care for older adults [8]. According to Liu, nurses have a negative attitude towards older adults, which is worrisome [9]. A study similarly found that most nurses had inadequate knowledge and a negative attitude toward the care of older adults [10]. Increasing nursing and health care education and fostering a positive attitude toward older adults are both more likely in middle-income nations since nurses in those countries are less prepared to care for the older adults [11].

The quality of care provided by nurses is influenced by their attitudes, and a negative attitude can have a detrimental impact [12]. Nursing education for the older adults has numerous problems as evidenced by a review of the literature, including nurses' negative attitudes towards older adults [13], and various factors affecting the attitude towards older adults [6]. There must be an evaluation of nurses' attitudes and knowledge about the care of the older adults. It is also critical to figure out what nurses' attitudes towards older adults are and what motivates them to provide better care [14]. Further research is required to understand what influences older adults' health promotion. Due to the importance and necessity of this issue and the lack of adequate research in Iran, researchers decided to investigate Iranian nurses' attitudes and knowledge about caring for the older adults.

2. METHODS

2.1. Study Design and Participants

This cross-sectional study investigated the nurses' attitudes and knowledge about caring for older adults in Southern Iran. The research settings are public hospitals in three cities of Kerman, Yazd, and Rafsanjan (Two government hospitals from each city), the most crowded centers in southeastern Iran.

2.2. Sample Size and Sampling

The total number of the study population in the three cities was 2872 nurses, of which 1200 nurses were employed in Kerman, 1226 nurses in Yazd and 446 nurses in Rafsanjan. According to Morgan's table, 380 nurses will be sampled, and 425 will be included in the study due to the dropout probability (15 percent). Two government hospitals will be randomly selected from each city for sampling in three centers. The number of nurses in each city will be determined in proportion to the number of nurses. (Kerman 175, Rafsanjan 70 and Yazd 180 nurses).

The following criteria must be met: 1) a nurse's attendance at the hospital for at least three months, 2) patient care, and 3) one year of work experience. Furthermore, nurses who were mentally unprepared to participate in the study or who filled in questionnaires incompletely were excluded from the study. Four hundred and twenty-five questionnaires were distributed among nurses. The response rate was 96.94%. Four hundred and twelve questionnaires were examined, with 13 incomplete questionnaires excluded. After excluding the incorrect surveys, the final analysis results were obtained from 412 respondents.

2.3. Measurements

Three questionnaires were used to collect data: a socio-

demographic form, an Older Patient in Acute Care Survey (OPACS), and Knowledge about Older Patients-Quiz (KOP-Q).

2.4. Socio-Demographic Form

Age, gender, level of education, marital status, income level, type of employment, work experience, shift work, ward, overtime, working hours per month, history of caring for older patients, and special illness were all part of demographic information collected from the respondents.

2.5. Older Patient in Acute Care Survey

Courtney *et al*. designed the OPACS questionnaire to examine nurses' attitudes towards older patients. The OPACS questionnaire had acceptable content validity, sufficient validity and high reliability (Kappa = 0.76) in Australia [15].

Using quantitative analysis, Dikken *et al*. (2017) performed the construct validity of the American version of OPACS. The construct validity of OPACS-US was confirmed with excellent reliability (Cronbach's alpha = 0.93). The OPACS - the US showed a valid construct measure persistent with the performance and perception of hospital nurses about older patients [14].

American version of OPACS comprises section A, practice experiences (28 items), and section B, a general opinion (36 items). OPACS uses a five-point Likert scale (ranging from 1 = never to 5 = very frequent). Items 1, 8, 9, 14, and 17 in section A and items 2 to 11, 14, 18, and 24 in section B should be scored reversely. Each item is given a score ranging from one to five. Therefore, scores for section A are 28-140, while scores for section B are 36-180 [14].The Cronbach's alpha for OPACS was 0.70 in this study. The content validity and internal consistency of the questionnaire were used to assess its validity and reliability. OPACS had a Cronbach's alpha coefficient of 0.71.

2.6. The Knowledge about Older Patient-Quiz

The KOP-Q questionnaire was prepared and approved in the Netherlands [16]. This questionnaire consists of 30 dichotomous items (true = 1/false = 0). KOP-Q showed adequate reliability, good psychometric validity, and reliability for knowledge items (Kuder-Richardson Formula 20 = 0.70). In addition, KOP-Q is approved for use in the United States [17]. The validity of the KOP-Q questionnaire was assessed by content validity, and its reliability was assessed by internal consistency (Cronbach's alpha = 0.93).

2.7. Data Collection and Data Analysis

Data were collected between July and October 2020. Two government hospitals were randomly selected in each of the three cities of Kerman, Yazd, and Rafsanjan. Each nurse was randomly assigned to the study after selecting the eligible samples and obtaining informed consent. The data were analyzed using SPSS25. The sample characteristics, the OPACS score, and the KOP-Q score were described using frequency, percentage, mean, and standard deviation. According to Kolmogorov–Smirnov test, the data of this study

were normal. Therefore, independent t-test and one-way ANOVA were used to compare study groups. The significance level was set at 0.05. In addition, multivariate linear regression with the backward method was used to determine the participants' significant variables associated with knowledge, general opinion, and practice experiences.

3. RESULTS

3.1. General Characteristics

Four hundred and twelve participants were included in the present study. Table **1** showed that the mean age of participants was 35.12 ± 9.4 years (Min = 23 and Max = 66). Most of the participants were female (283, 68.7%), married (259, 62.9%), employed (238, 57.7%), had a bachelor's degree (334, 81.1%), worked in general wards (189, 45.8%), had a work experience less than 5 years (145, 35.2%), were satisfied with their jobs (304, 73.8%), had rotating shifts (304, 73.8%), had no history

of psychological disorders (349, 84.7%) and drug use (345, 83.7%).

Table **2** showed participants' mean scores of attitudes toward the care of older adults. In this study, the participants' mean score of knowledge of caring for older adults was 15.7 out of 30 (Table **2**).

Table **3** showed that based on the one-way ANOVA test, the mean score for nurses in Yazd was lower than for nurses in the other two cities in the section of general opinion and subscale of knowledge, and there was no statistically significant difference in practice experience of nurses in the three cities (p = 0.952). A statistically significant difference exists in the scores of the general opinion and the knowledge of the older adults care among nurses in Kerman, Yazd, and Rafsanjan (p = 0.000). Therefore, the mean score of nurses' general opinion and knowledge in Yazd city was lower than nurses in the other two cities.

Table 1. Demographic and clinical information of the participants (N = 412).

Variables		N (%)	Variables		N (%)
City	Kerman	186 (45.1)	Type of employment	Governmental employment	238 (57.7)
	Yazd	177(43.0)		Non-governmental employment	174(42.3)
	Rafsanjan	49 (11.9)		Total	412(100)
	Total	412(100)			
Gender	Male	129(31.3)	Job history	Under 5	145(35.2)
	Female	283(68.7)		5-10	72(17.5)
	Total	412(100)		11-15	72(17.5)
	20-30	149(36.2)		16-20	49(11.9)
	30-40	126(30.6)		21-25	41(10.0)
	40-50	98(23.8)		More than 20	33(8.0)
	Above 50	39(9.5)		Total	412(100)
Age(year)	Total	412(100)	Job satisfaction	Yes	304(73.8)
	Married	259(62.9)		No	108(26.2)
	Unmarried	148(35.9)		Total	412(100)
Marital status	Others	5(1.2)	Phycological disorders	Yes	63(15.3)
	Total	412(100)		No	349(84.7)
	Bachelor	334(81.1)		Total	412(100)
Educational level	Master's degree	78(18.9)	Drug use	Yes	67(16.3)
	Total	412(100)		No	345(83.7)
	General	189(45.8)		Total	412(100)
Ward	Critical care	141(34.2)	Shift work	Morning	66(16.0)
	Emergency	82(20)		Evening	26(6.3)
	Total	412(100)		Night	16(3.9)
				Shifts in circulation	304(73.8)
				Total	412(100)

Table 2. Total mean scores of knowledge, general opinion and practice experiences of the participants (N = 412).

Variables	Mean	SD	Min	Max
Knowledge	15.7087	2.08286	9.00	24.00
General opinion	3.2192	0.21916	2.29	3.85
Practice experiences	3.5169	0.29222	2.75	4.29

Table 3. Comparison of knowledge, general opinion and practice experiences scores in terms of demographic and clinical features

Variable		P value	Variable		P value	Variable		P value
Knowledge	**Town**	**0.000***	**General opinion**	**Town**	**0.000***	**Practice experiences**	**Town**	**0.952***
	Gender	0.01**		Gender	0.432**		Gender	0.104**
	Age	0.012*		Age	0.002*		Age	0.003*
	Education	0.025**		Education	0.482**		Education	0.816**
	Ward	0.033*		Ward	0.109*		Ward	0.583*
	Shift	0.305*		Shift	0.00*		Shift	0.044*
	Employment	0.025**		Employment	0.00**		Employment	0.004**
	Job history	0.002*		Job history	0.000*		Job history	0.008*

Data were presented as * One-way ANOVA; ** Independent T test.

There was a statistically significant difference in both variables of knowledge and attitude towards caring for older adults according to the age groups of nurses (P <0.05). The mean scores of nurses' knowledge and attitude towards caring for older adults had statistically significant differences, with the mean scores of nurses aged 20-30 years being lower than those of other age groups. One-way ANOVA test also showed that the mean score of nurses' knowledge of caring for older patients in emergency departments was lower than that for nurses in general wards and intensive care units, and this difference was statistically significant (p = 0.033). Evening and night shift nurses had lower mean scores of attitudes in both sections than morning and rotating shift nurses, and this difference was statistically significant (P = 0.044) (P = 0.00). In terms of work experience, the mean scores nurses' attitude (in both sections) and knowledge of caring for older adults differed statistically significantly (P<0.05). One-way ANOVA test showed that the mean scores for nurses' attitude and knowledge of caring for older adults were not statistically significant in terms of marital status, job satisfaction, mental illness and specific drug use. Independent t-test showed a statistically significant difference between the male and female nurses in scores of knowledge of caring for the older adults (P = 0.01). In this study, the mean knowledge score of female nurses was higher than that of male nurses. No statistically significant difference was observed in the attitude subscale (experiences and general opinion) between the male and female nurses participating in the study (P> 0.05).

An independent t-test also revealed that postgraduate nurses had a higher mean score of attitude in both sections and a higher mean score of knowledge of caring for older adults than undergraduate nurses. This difference is statistically insignificant in the attitude subscale but statistically significant in the knowledge subscale (P= 0.025). Regarding the type of employment, the mean score of attitudes in both sections and the mean score of knowledge of caring for older adults had statistically significant differences (P <0.05).

3.2. Regression Analysis

3.2.1. Variables Correlated with Knowledge, General Opinion, and Practice Experiences

The Pearson correlation test results in Table **4** showed a statistically significant and positive correlation between knowledge and the general opinion of nurses about older adults' care (P = 0.000), (r = 0.271). There was no statistically significant correlation between knowledge and practice experiences (P = 0.857), (r = -. 009). In addition, there was a statistically significant and positive association between the sections of practice experiences and general opinion (P = 0.000), (r = 0.205).

Table **5** showed the results of multivariate linear regression with a backward method to determine the significant variables associated with knowledge, general opinion, and practice experiences in the participants. Seven percent of the variance of knowledge was predicted by gender, education level, shift, and employment status (R^2= 7%). Gender, education level, and employment status predicted 10% of the variance of general opinion (R^2= 10%).

Table 4. Relationship between knowledge, general opinion and practice experiences in the participants (N = 412).

Pearson Correlations			Experiences	General opinion
Knowledge		Correlation	r=-.009	r=0.271**
		Sig	P=0.857	P=0.000
		N	412	412
Experiences		Pearson Correlation		r=0.205**
		Sig		P=0.000
		N	412	412

Table 5. Multiple regression analysis for variables of knowledge, general opinion and practice experiences (N = 412)

Variable	B	SE	B	t	P	95% CI lower	95% CI Upper	R^2
knowledge								%7
Gender	0.548	0.222	0.122	2.467	.014	0.111	0.985	
Education	0.647	0.275	0.122	2.352	0.019	0.106	1.187	
Shifts	0.301	0.101	0.166	2.989	0.003	0.103	0.499	
Employment	-0.243	0.106	-0.188	-2.280	0.023	-0.452	-0.033	
General opinion								%10
Gender	0.085	0.023	0.180	3.702	0.000	0.040	0.130	
Education	0.074	0.028	0.132	2.583	0.010	0.018	0.129	
Employment	-0.027	0.011	-0.201	-2.482	0.013	-0.049	-0.006	

4. DISCUSSION

Nurses' attitudes toward caring for older adults ranged from neutral to positive, according to the results of the current study, which also found a statistically significant correlation between the nurses' practice experiences and the general opinion about caring for older adults. Hamedanizadeh *et al.* [18] and Musaiger [19] also showed that nurses had positive experiences and attitudes towards the care of older adults. One of the most important aspects of providing any type of service is having a positive attitude toward it [20]. Nurses' attitudes can influence the quality of care offered to older adults [21]. Aging and several related diseases necessitate the employment of skilled nurses to improve the quality of care [22] and appear to affect nurses' attitudes towards the care of older adults and their recovery, as the current study showed.

Capezuti *et al.* [23] and Arani [24], on the other hand, demonstrated nurses' negative attitudes towards older adults. The difference in the attitude between nurses in some studies and the current study appears to be due to difference in the study population.

Regression analysis in the current study revealed that gender, education, and employment affected attitude in the section of general opinion. Furthermore, age was one of the main factors influencing attitude based on the results of the one-way ANOVA test. Faronbi reported no significant relationship between age and attitude, except for the age group of 20-25 years [3], whereas in the current study, nurses aged 20-30 years had a lower attitude score . Rhodes discovered that gender and age had an effect on how people perceived older adults [25]. The current study revealed that participants over the age of 30 had a more positive attitude towards the older adults; it appears that older adults have a better understanding of aging. According to a study that supports our observations, younger nurses are reluctant to care for older adults, however this reluctance can be enhanced by education and hence their attitudes must become positive [26]. One of the most important findings in our study of nurses' positive attitudes toward the older adults was their level of education. There was a significant relationship between nurses' attitude towards the care of older adults and their level of education. Additional education improves nurses' attitudes toward aging, and even more recent training equips nurses with more effective care practices. One study found that as nursing students progressed

to higher education, they developed a more positive attitude towards older adults [21].

The results show a significant relationship between nurses' knowledge and attitudes toward older adults. Additionally, while there is a statistically significant and positive correlation between knowledge and attitude in the section on general opinion among nurses caring for older adults, there is no such relationship between knowledge and attitude in the section of practice experiences. In addition, according to the results of this research, the mean score of knowledge of the care for older adults appears to be low and in need of improvement. As the primary caregivers for older adults, nurses must be aware of the quality of their care. The study results corroborate the results of Eltantawy *et al.* [27], Montejo *et al.* [28], Naylor [29], Faronbi [3], and Deasey *et al.* [26]. They reported a direct relationship between side effects experienced by hospitalized older adults (extended length of stay or increased incidence of nosocomial infections) and nurses' lack of knowledge [26]. The nurses had a good knowledge of caring for the older adults and were familiar with the causes and prevention of complications, which gave them a positive attitude towards caring for older adults [3].

Ross, on the other hand, demonstrated that experiences and knowledge could not predict a positive attitude toward the care of older adults [30]. Regression analysis in the current study revealed that the variables influencing knowledge were gender, education, shift type, and employment. The gender of the participants has a significant impact on nurses' knowledge and attitude towards older adults. In the current study, female nurses had a higher mean knowledge score than male nurses. Gender also played a significant role in the attitudes of the participants. Arani showed that male nurses had a more positive attitude toward caring for older adults than female nurses, which was inconsistent with the current study [24]. Sharafi [31] and Lambrinou [21], on the other hand, identified age and gender as moderating variables influencing knowledge and attitudes toward older adults, demonstrating that women had greater knowledge and attitudes than men. Due to inconsistent effects of this variable on nurses' knowledge and attitudes, it appears that more research is required to confirm or reject the effect of gender on nurses' knowledge and attitudes.

The level of education of nurses was another important factor that emphasized the knowledge and positive attitudes of

nurses in the recent study. There was a significant relationship between nurses' knowledge of caring for older adults and their level of education. Postgraduate nurses had a higher mean level of education than undergraduate ones. Courtney [15], Lambrinou [21], Gillis [32], and Angiullo [33] agreed with the results of the recent research, which showed that increasing knowledge resulted in a significant reduction in negative attitudes [15]. Lower educated nurses cannot teach older adults how to take care of themselves, leaving older adults dependent [32]. Furthermore, education had a stronger influence on attitude than experience [33].

Another factor influencing knowledge and attitudes among nurses was their type of employment. Employed nurses had more knowledge and a more positive attitude toward caring for older adults. On the other hand, employees have a job guarantee system that has a positive effect on providing services to recipients because it leads to job satisfaction. According to Gellis *et al.*, the only factor that predicts a positive attitude towards older adults is a desire to care for them. In general, the type of employment and access to job services have a significant impact on older adults' tendency to be cared for [32].

In addition, the nurses' type of shift in the current study affected their knowledge of caring for older adults. Since nurses caring for older adults may perform different duties in different shifts, they can improve their knowledge, work experience, and attitude.

In this research, there was a statistically significant difference in work experience and its impact on nurses' knowledge and attitudes. Algoso's [22] and Deasey's [26] also reported that nurses with more work experience were less afraid in the clinical setting, which improved their clinical experience, and experienced nurses could influence the attitudes of less experienced nurses by transferring their attitudes.

Among the nurses who participated in this study, emergency nurses had less knowledge and attitudes toward caring for older adults than nurses did in general and intensive care unit (ICU) wards, while ICU nurses had more knowledge and attitude. In line with the results of the current study, Fessey *et al*. [34] and Deasey [26] found that emergency nurses did not have a positive attitude towards older adults and the opportunity for better education, making the emergency department unsuitable for their treatment. Due to the complexity of their condition, older adults have special clinical needs in ICUs that are not easily recognizable in younger patients, necessitating special training and skills, as well as an increase in the nurse's knowledge of the older adults [26]. Overtime and critical condition in the emergency department, according to emergency nurses, are the leading causes of a lack of time to care for older adults in terms of their psychological aspects [35].

Finally, this study's results revealed that nurses' mean scores of knowledge and attitudes towards older adults were not statistically significant in terms of marital status, workplace satisfaction, mental illness, and specific drug use.

4.1. Study Strength and Limitations

This study has a good sample size, comparable to what is considered a big sample, with 412 nurses participating in three distinct cities and six hospitals. This finding is one of the study's strengths. There were several limitations to this study as well. Due to the cross-sectional nature of this study, different outcomes may be observed at different times. However, some of the questionnaires had missing information, so we had to re-sample.

CONCLUSION

The current study concluded a direct and significant relationship between nurses' knowledge and attitudes towards caring for older adults. The current study showed that female nurses had a higher mean knowledge score than male nurses, and postgraduate nurses had a higher mean knowledge score than undergraduate nurses.

Employed nurses had more knowledge and a positive attitude towards caring for older adults.

Emergency nurses had less knowledge and attitudes towards caring for older adults than those working in general and critical care wards. By increasing nurses' knowledge and awareness of older adults, they can have more interactions with them and provide better care.

It is also suggested that educational managers and policymakers develop more educational programs to improve emergency department nurses' knowledge and attitudes.

LIST OF ABBREVIATIONS

WHO	=	The World Health Organization
OPACS	=	Older Patient in Acute Care Survey
KOP-Q	=	Knowledge about Older Patients-Quiz
ICU	=	Intensive Care Unit

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The researchers began sampling after acquiring the code of ethics No. IR.KMU.REC.1399.278 from the Ethics Committee of Kerman University of Medical Sciences.

HUMAN AND ANIMAL RIGHTS

No animals were used for studies that are the basis of this research. All the humans used were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975

CONSENT FOR PUBLICATION

At the beginning of the study, the study's goals, confidentiality, and security of the data were all described to nurses, and informed consent was obtained.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting this study's findings are available from the corresponding author, [A.T.], on special request.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest in this study.

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