

Original Research Article

The knowledge and attitude of adults towards home safety measures of elders in Saudi Arabia

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ABSTRACT

Background: The population of elderly individuals is increasing rapidly in the Kingdom of Saudi Arabia (KSA). Home safety measures are important for the well-being and independence of the elderly. However, little is known about the knowledge and attitudes of adults towards home safety measures of the elderly in KSA.

Methods: This cross-sectional study was conducted in KSA among a sample of 399 adults aged 20 years and above. Data was collected using a designated questionnaire which was distributed through social media platforms.

Results: The results showed that the overall knowledge of adults regarding home safety measures of the elderly in KSA was fair in 42% of participants and poor in 38% of participants. Moreover, the attitude of adults towards home safety measures of the elderly was positive in only 34 % of population.

Conclusions: Knowledge and attitude regarding elderly home safety measures are significantly correlated and most of the participants demonstrated poor to fair knowledge. However, approximately half of the participants showed a neutral attitude regarding home safety measures towards elders.

Keywords: Attitude, Elder, Home safety, Knowledge, KSA

INTRODUCTION

Home safety for elderly individuals is a global concern.¹ According to WHO, there will be 1.4 billion people over the age of 60.² According to a recent statistic from the Department of Statistics, there are roughly 1.3 million elderly people, or 5% of the total population in Saudi Arabia.³ Most elder individuals spend a lot of time at home, where they typically feel safe. However, many accidents could happen to them at home.⁴ The most common accidental injuries occur among the elderly including falls, burning, and poisoning.⁵ Accidental injuries could be avoided by using specified environmental changes and appropriate therapeutic interventions. By conducting a comprehensive assessment, home-care givers can play a significant role in preventing accidental injuries.⁶ In a year the Saudi elderly population in Riyadh had a significant rate of falls (49%), which could be prevented by proper safety

measures extrinsic factors, such as environmental dangers, and intrinsic factors, such as aging-related physiological changes (mobility issues), can all contribute to falls. Injury from falls was significantly influenced by environmental factors. Most people do not reside in a risk-free environment.⁷ Most homes have potential risks such as loose carpets, dim lighting, slick flooring, unstable furniture, and blocked walks.⁸ Elderly individuals are also more likely to sustain fire-related injuries.⁹ Several factors put elderly people at risk for fire-related injuries and deaths, including physical changes like poor physical health or injury sensitivity, mental changes, and behavioral changes.¹⁰ Food safety is an important global issue that influences everyone as people age, their sensation tends to deteriorate, that lowers the chance of detection of food poisoning.^{11,12} The degree of home hazard can be reduced by increasing associated interventions and boosting awareness.⁸ The Saudi Ministry of Health adopted health education

campaigns emphasizing the protection of the elders how to protect them from fall risks and the significance of elderly care, home care is one of the services offered.³ To provide a safe environment for elders, it's essential to understand the adults' knowledge and attitude toward home safety measures of elders since those adults could be current caregivers or future caregivers for the elderly population. Assessment of their knowledge and attitude will detect the future practice of adults in Saudi Arabia, this will lead to reducing the risks of home hazards and help the elder to function well, hence improving the quality of the elderly's life.⁴

The study aimed to assess the knowledge and attitude of adults regarding home safety measures of elder in KSA.

METHODS

Study design, setting and study duration

A cross-sectional study is conducted among adults in Saudi Arabia. Data was compiled over a period of two months from February to March 2023. The study population included adults ranging from 20 to 59 years old.¹³

Sampling

The participants were recruited through a convenient sampling technique. The research questionnaire was distributed through google forms via social media platforms in the Arabic language.

The sample size was calculated using the Cochran equation: $n = \frac{Z^2 pq}{d^2}$.¹⁴ Population size >10000, Prevalence of factor understudy: 50%, degree of error: 0.05, confidence level: 95%, design effect: 1 (Cochran, 1977). A sample size of 384 was determined and calculated. However, 399 responses were gathered which fulfilled the requirements of the inclusion criteria.

Research instrument

The research tool was created by the researchers guided by (Check for Safety: A home fall prevention checklist for older adults. CDC, 2016) and (Home safety booklet. Civil Defense, KSA) which consists of 33 questions distributed into four sections as follows^{15,16}:

Section 1: Consists of 8 questions that covered the characteristics of the participants including age, gender, and nationality, place of residency, marital status, education level, work sector, and income.

Section 2: Consists of 8 questions that measure the knowledge level regarding home safety measures among participants. These questions were presented as multiple choice. Right answers scored 1 point and wrong answers scored zero points and the maximum score was 8 and the minimum was 0. The cutoff score for knowledge was

taken according to Bloom's cutoff.¹⁷ As good if the score was between 80% and 100% (8-7), moderate if the score was between 60% and 79% (6-5), and poor if the score was less than 60% (4-0).

Section 3: Consists of 7 questions that measure the attitude tendencies regarding home safety measures among participants, Answers were presented as a 5-point Likert scale ranging from (strongly agree). Thus, for positive questions, it assigns a value of five to (strongly disagree) which was given a score of one, the maximum score is 35 and minimum score is 7. However, questions (1,2,4,6,7) were reversed. The cutoff point of attitude was taken based on quartile 1 and 3 percentile cutoff as the following (7-16) negative attitude, (17-25) neutral attitude, (>26) positive attitude.

Validity and reliability

The reliability test was conducted using Cronbach's alpha test, for knowledge it was $\alpha=0.62$ and for attitude, it was $\alpha=0.64$. Validity tested all the knowledge and attitude questions which were significantly correlated with the overall score $r>0.5$.

Data analysis

Data were analyzed by using statistical software (JMP Version 17.0).¹⁸ The descriptive data was presented in frequency tables as numbers, percentages, and graphs to show the frequencies of total knowledge and attitude. As for the inferential statistics, it was conducted by using the Pearson Chi-Square to measure the association between knowledge and attitude, and sociodemographic factors with both variables. The correlation between knowledge and attitude was assessed using the Pearson correlation test, multiple linear regression was performed to assess predictors of attitude regarding home safety measures of elders among the studied sample, and the P value was significant at ≤ 0.05 .

This research has an IRB number (23-7900), participation was voluntary, and participants were assured that their information is kept confidential, the information collected was anonymous, and the objectives of the study and purpose of data collection were explained to the participants.

RESULTS

The sociodemographic characteristics are shown in table 1. The percentage of females is 82.2%. 76.7% of the participants were in the age group 20-29. The majority of participants were Saudi. 80% of participants lived in Riyadh. Regarding education level and working status, 59.5% of participants were students and 75.9% had bachelor's degree. 76.2% were unmarried and 69.2% had a middle income.

Table 1: Sociodemographic of the study sample.

Variables	N	%
Sex		
Female	328	82.2
Male	71	17.8
Age (years)		
20-29	306	76.7
30-39	30	7.5
40-49	43	10.8
50-59	20	5.0
Nationality		
Saudi	361	90.5
Non-Saudi	38	9.5
Residency		
Riyadh	319	80.0
Outside Riyadh	80	20.0
Marital status		
Unmarried	304	76.2
Married	86	21.5
Divorced/widowed	9	2.3
Education level		
School education	81	20.3
Bachelor's degree	303	75.9
Postgraduate	15	3.8
Working status		
Student	237	59.4
Working	93	23.3
Not working	68	17.0
Missing data	1	0.3
Income		
Low	76	19.0
Middle	276	69.2
High	38	9.5
Missing data	9	2.3
Total	399	100

Table 2 describes the knowledge regarding home safety measures among the studied sample. 70.2% of participants knew the characteristics of a safer bedroom for elders and 87.2% knew what a suitable bed for elders is. While 39.1% answered the question about elders' safety during bathing incorrectly and 34.3% of participants answered incorrectly regarding elders' food safety question.

Figure 1 describes the overall knowledge score among the studied sample. 42% of the participants had fair knowledge, 38% had poor knowledge, and 20% had good knowledge.

Table 3 demonstrates the attitude regarding home safety measures among the studied sample. 61.9% of participants feel that fire alarms are important for elders' safety, and 50.6% of participants feel that it's better to replace multiple extension cords with one long extension cord. While 6.80% of participants feel that having a step

ladder in the kitchen is important, and 35.2% feel that monitoring the elder by using camera surveillance is enough.

Table 2: Knowledge regarding home safety measures among the studied sample.

Questions	Correct		Incorrect	
	N	%	N	%
What is the most suitable type of floor for the elders?	275	68.9	124	31.1
The characteristics of a safer bedroom for elders are:	280	70.2	119	29.8
The suitable bed for elders is:	348	87.2	51	12.8
For elders' safety during bathing:	156	39.1	243	60.9
The suitable place to put non-slippery tiles is	259	64.9	140	35.1
The characteristics of a safer bathroom for elders are:	241	60.4	158	39.6
Due to reduced sensation in taste and smell in elders, what do you have to do while serving food for them?	137	34.3	262	65.7
For elders' safety while using the stairs are:	239	59.9	160	40.1
Total	n=399		100%	

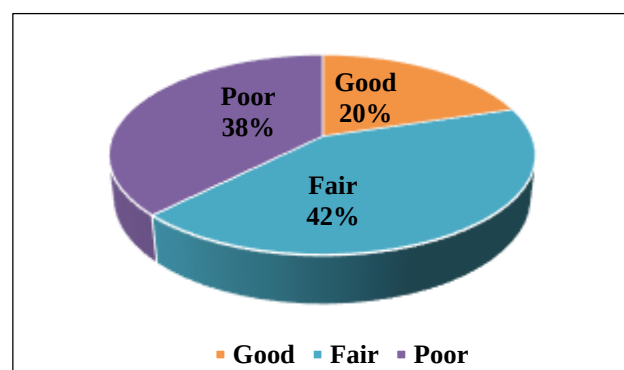
**Figure 1: Overall knowledge score among studied sample.**

Figure 2 describes the overall attitude score of the individuals, 57% of participants had a neutral attitude, 34% had a positive attitude, and 9% had a negative attitude.

Table 4 shows the association between sociodemographic and knowledge. There is a significant association between knowledge and gender, where 91.4% of females had "good" knowledge at a p value (0.02).

Table 3: Attitude regarding home safety measures among the studied sample.

Questions	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	N	%	N	%	N	%	N	%	N	%
Do you feel that having a fire extinguisher in the home is a secondary matter for elders' home safety?	103	25.8	80	20.1	68	17.0	87	21.8	61	15.3
Do you feel that having a step ladder in the kitchen is important to help elders to reach out the shelves?	76	19.0	111	27.8	120	30.1	65	16.3	27	6.80
Do you feel it's better to replace multiple extension cords with one long extension cord on the sideway to prevent danger?	202	50.6	118	29.6	59	14.8	15	3.8	5	1.20
Do you feel it's better to put all elders' medications in a far and warm place so they can't be lost or wasted?	99	24.8	89	22.3	94	23.6	74	18.5	43	10.8
Do you think providing a fire alarm is important for elders' safety?	247	61.9	98	24.6	44	11.0	10	2.50	0	0
Do you feel that (chairs and step ladders) are safe and can help the elder to get access to stuff?	78	19.5	72	18.1	117	29.3	80	20.1	52	13.0
Do you feel that monitoring elders by using camera surveillance is enough, so you don't have to visit or be around them?	52	13.0	54	13.5	70	17.5	83	20.8	140	35.2
Total	n=399				100%					

Table 4: The association between sociodemographic and knowledge.

Variables	Overall knowledge score						P value
	Good		Fair		Poor		
	N	Column %	N	Column %	N	Column %	
Sex							
Female	74	91.4	139	82.7	115	76.7	*0.02
Male	7	8.6	29	17.3	35	23.3	
Age							
20-29	57	70.4	138	82.1	111	74.0	*0.43
30-39	7	8.6	11	6.6	12	8.0	
40-49	12	14.8	12	7.1	19	12.7	
50-59	5	6.2	7	4.2	8	5.3	
Nationality							
Saudi	74	91.4	155	92.3	132	88.0	*0.41
Non-Saudi	7	8.6	13	7.7	18	12.0	
Residency							
Riyadh	64	79.0	137	81.5	118	78.7	*0.79
Outside Riyadh	17	21.0	31	18.5	32	21.3	
Marital status							
Unmarried	57	70.4	137	81.5	110	73.3	**0.23
Married	22	27.1	27	16.1	37	24.7	
Divorced \ widowed	2	2.5	4	2.4	3	2.00	

Continued.

Variables	Overall knowledge score						P value
	Good		Fair		Poor		
	N	Column %	N	Column %	N	Column %	
Education level							
School education	17	21.0	32	19.0	32	21.3	*0.90
Bachelor’s degree	62	76.5	130	77.4	111	74.0	
Postgraduate	2	2.5	6	3.6	7	4.7	
Working status							
Student	46	56.8	105	62.5	86	57.3	**0.30
Working	15	18.5	39	23.2	39	26.0	
Not working	20	24.7	23	13.7	25	16.7	
Missing data	0	0.0	1	0.6	0	0.0	
Income							
Low	17	21.0	33	19.6	26	17.4	**0.44
Middle	58	71.6	116	69.1	102	68.0	
High	6	7.4	15	8.9	17	11.3	
Missing data	0	0.0	4	2.4	5	3.3	
Total	n=399			100%			
*Chi-square Pearson							
**Chi-square likelihood ratio							

Table 5: The association between sociodemographic and attitude.

Variables	Overall attitude score						P value
	Positive		Neutral		Negative		
	N	Column%	N	Column%	N	Column%	
Sex							
Female	122	89.0	176	78.2	30	81.1	*0.03
Male	15	11.0	49	21.8	7	18.9	
Age (years)							
20-29	116	84.7	161	71.56	29	78.4	**0.10
30-39	6	4.4	20	8.9	4	10.8	
40-49	9	6.5	31	13.8	3	8.1	
50-59	6	4.4	13	5.8	1	2.7	
Nationality							
Saudi	126	92.0	201	89.3	34	91.9	*0.67
Non-Saudi	11	8.0	24	10.7	3	8.1	
Residency							
Riyadh	117	85.4	173	76.9	29	78.4	*0.14
Outside Riyadh	20	14.6	52	23.1	8	21.6	
Marital status							
Unmarried	110	80.3	162	72.0	32	86.5	**0.12
Married	25	18.2	56	24.9	5	13.5	
Divorced/widowed	2	1.5	7	3.1	0	0.0	
Education level							
School education	22	16.1	51	22.7	8	21.6	*0.38
Bachelor’s degree	110	80.3	164	72.9	29	78.4	
Postgraduate	5	3.6	10	4.4	0	0.0	
Working status							
Student	91	66.4	120	53.4	26	70.3	**0.09
Working	30	21.9	56	24.9	7	18.9	
Not working	16	11.7	48	21.3	4	10.8	
Missing data	0	0.0	1	0.4	0	0.0	
Income							
Low	22	16.1	46	20.4	8	21.6	**0.47

Continued.

Variable	Overall attitude score						P value
	Positive		Neutral		Negative		
	N	Column%	N	Column%	N	Column%	
Middle	102	74.4	150	66.7	24	64.9	
High	11	8.0	22	9.8	5	13.5	
Missing data	2	1.5	7	3.1	0	0.0	
Total	n=399			100%			
*Chi-square Pearson							
**Chi-square likelihood ratio							

Table 6: The association between knowledge and attitude.

	Overall knowledge score						*p value
	Good		Fair		Poor		
	N	Column %	N	Column %	N	Column %	
Overall attitude score							**0.001
Positive	35	43.2	67	39.9	35	23.3	
Neutral	42	51.9	90	53.6	93	62.0	
Negative	4	4.9	11	6.5	22	14.7	
Total	n=399		100%				
*Chi-square Pearson							
**Statistically significant							

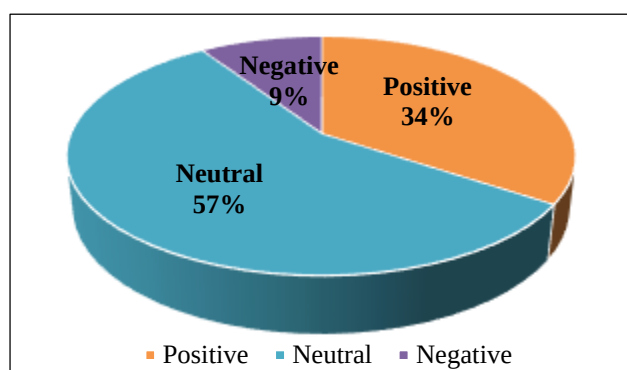


Figure 2: Overall attitude score among the studied sample.

Table 5 shows the association between sociodemographic and attitude. There is a significant association between attitude and gender, where 89% of the participants who had a positive attitude were females at a p-value (0.03).

Table 6 shows the association between knowledge and attitude. There was a significant association between knowledge and attitude at a p-value of 0.001.

DISCUSSION

Knowledge

Most of the participants had poor to fair knowledge regarding home safety measures for elders while nearly a quarter of participants showed good knowledge. This could be attributed to the participants being student as they may have little knowledge as well as they may have no motives to learn about elders' safety. Yet, most

participants have high knowledge regarding falling which is the most common accident in elders. Similarly, a study conducted in the USA showed that all employees of senior-serving organizations cited falls as a critical health concern for people 65 and older, with 62% saying it is a "critical" or "very urgent" concern.¹⁹ The current study showed a significant association between knowledge and gender as well as females have higher knowledge than males, this could be attributed to females' nature of being knowledgeable with most of the information regarding health topics. This was in line with a Saudi Arabian study that revealed a considerable gender gap, with women scoring higher on both knowledge and practice of home safety.²⁰

Attitude

More than half of the participants had a neutral to positive attitude regarding elders' home safety, while a minority had a negative attitude. There was a significant association between attitude and gender as females showed a positive attitude more than males, this could be related to their nature of being caring for family members, and having a sense of emotions towards elders which was similar to a study conducted in Saudi Arabia to assess the attitude of females towards elders as they believe that it's not acceptable for the elder to be sent to the nursing home.²¹ The participants showed negative attitude regarding use of fire extinguisher for fire safety measures of elders. This could be attributed to the age of participants as most of them are young adults (20-29) which may indicate that their ability to use a fire extinguisher is limited. This was contrary to a study conducted in Amsterdam assessing the knowledge and behavior of elders regarding fire safety. The elders stated

from their point of view that they can use fire extinguishers as they believe that they're able to extinguish the fire.⁹

Association between knowledge and attitude

The findings showed that there was a significant positive association between knowledge and attitude toward home safety measures for elders. Participants who had better knowledge regarding home safety were more likely to have a positive attitude towards implementing these measures in their homes. This was similar to a study conducted in China assessing attitudes as mediators between knowledge and behavior in unintentional injuries at home. As it stated that knowledge and attitude play a crucial role in providing a safer environment at home.²² This was confirmed by the results of the current study, as when applying the correlation test, there was a significant correlation between knowledge and attitude.

CONCLUSION

In conclusion, knowledge, and attitude regarding elders' home safety measures are significantly correlated and most of the participants demonstrate poor to fair knowledge. However, approximately half of the participants showed neutral attitude regarding home safety measures towards elders. Therefore, it is recommended that the government and non-governmental organizations should conduct awareness campaigns to educate adults about home safety measures for the elders. These campaigns should be conducted in different languages to reach a wider audience. The community should be involved in promoting home safety measures for elders. Also, it is recommended to conduct future research to assess the home safety measures practice toward elders.

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