

Knowledge and Attitudes about Geriatrics among Emergency Department Doctors in Hospital Universiti Sains Malaysia

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ABSTRACT

Introduction: The number of elderly patients presenting to emergency departments (EDs) is rising in line with the growing geriatric population. There are valid concerns whether the existing emergency care system is prepared to deal with a larger geriatric population presenting with acute medical problems. The objective of this study is to assess baseline knowledge and attitudes of doctors toward elderly patients and to determine the factors that influence it. **Methods:** A cross-sectional study was conducted among emergency doctors in ED of Hospital Universiti Sains Malaysia (Hospital USM) from February 2020 to July 2020 using a validated questionnaire. The questionnaire consists of three sections: sociodemographic background of the respondents, their knowledge and core attitudes toward elderly. The responses were analyzed using descriptive analysis, simple and multiple logistic regression analysis. **Results:** A total of 198 ED doctors in Hospital USM participated in the study. Most respondents held positive attitudes toward elderly (53.5%). However, the majority of respondents had poor geriatric knowledge level (76.3%). The age of the doctor (AOR 0.08; 95%CI: 0.01, 0.89; $p=0.042$) was a factor that influenced attitudes toward geriatric patients. Nevertheless, no single factor was found to influence good geriatric knowledge. A significant weak positive correlation ($r=0.154$, $p=0.031$) was found between geriatric knowledge and attitudes toward elderly. **Conclusion:** A more innovative and structured geriatric continuing medical education should be implemented to enhance the knowledge and dispel negative attitudes, so emergency doctors are able to manage elderly patients more confidently.

Keywords: Attitudes, Emergency Department, Geriatric, Knowledge.

ABBREVIATIONS

ED: Emergency Department; GKT: Geriatric Knowledge Test; GAS: Geriatric Attitudes Scale; USM: Universiti Sains Malaysia.

INTRODUCTION

“The elderly or older persons” in Malaysia is defined as those who are 60 years and above [1]. This definition is in line with the United Nations. Over the last six decades, Malaysia’s population has nearly quintupled. It

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is projected that the proportion of geriatric population will reach 12.4% by 2040 [2]. In keeping with this demographic trend, the number of elderly patients presenting to Malaysian emergency departments (EDs) is expected to rise.

Malaysia is one of the countries that have already demonstrated high emergency department usage by those aged 60 years and above. The number of elderly patients visiting the ED accounted for 25.6% of emergency department attendance [3]. This proportion is higher than that reported in other countries such as Hong Kong [4] and Pakistan [5], where the elderly constituted 14% and 24% of ED visits, respectively. There has been concern about whether the current emergency care system is well equipped to handle the geriatric population presented with acute medical problems.

There are lot of challenges that an emergency doctor might face in delivering acute care to this fragile and unique populations. Elderly patients in ED are often presented with a complex presentation on top of multiple comorbidities and polypharmacy. Most of the time, an emergency doctor who care for adults will be called to treat substantial and increasing numbers of elderly patients. Most doctors treat the elderly the same way that they treat adults. However, elderly aren't just old adults. Emergency care for elderly patient is expected to be more time consuming and challenging than for younger patients due to physiological changes and higher comorbidity associated with aging [6]. Having a better understanding of the geriatric unique physiology allows the doctor to recognize a typical presentation of common diseases earlier and provides appropriate high-quality health care and services to elderly patients [7].

Knowledge is important, but so is attitude. Negative attitudes among healthcare personnel have been identified as a major contributor to the poor quality of care provided to these elderly patients [8]. Thus, negative "ageist" attitudes should be abolished. A local comparative study was conducted to assess the knowledge and attitudes towards the elderly and aging patients in which the targets population of the study was first- and third-year nursing students. The study found that only 10% of the third-year and none of the first-year students were willing to pursue geriatric nursing as their first preference. These reflect some negative attitudes and misconceptions toward the elderly. However, it is tempered by the fact that more than 96% of the same students expressed a desire to know more about the elderly and the aging process. Hopefully, by acquiring more exposure and knowledge pertaining to the elderly can have a favourable

impact on their attitudes toward the elderly [9].

Although Malaysia has comprehensive medical and health care for the general population, education in caring for older adults is still lacking [10]. Understanding current geriatrics knowledge and attitudes of emergency doctors is helpful in implementing a more structured geriatric curriculum. However, there is a scarcity of local data on doctors' knowledge and attitudes in ED, Malaysia. Having proper geriatric education as part of the continuum of medical education will help to improve the knowledge and attitudes in caring for geriatric patients among ED doctors.

Therefore, the objective of this study is to assess baseline knowledge and attitudes of doctors working in the ED toward elderly patients and to determine the factors that influence emergency doctors' knowledge and attitudes toward them. The findings of the study are expected to be useful in raising awareness and justify the need for developing a structured geriatric curriculum to improve the care provided to elderly patients in Malaysia.

METHODS

Setting

This cross-sectional study was conducted in ED Hospital USM from February 2020 to July 2020. Hospital USM is the primary teaching hospital for USM undergraduate and postgraduate students located on the Northern East Coast of Peninsular Malaysia.

Study Criteria

All doctors in the ED Hospital USM who met the inclusion and exclusion criteria during the study period were included. The exclusion criteria were doctors aged 60 years old and above, who were doing attachment less than 3 months in ED Hospital USM and subspecialty in geriatric medicine or geriatric emergency medicine.

Sampling Methods and Sample Size Calculation

Samples were selected via random sampling method from the general list of medical and house officers who fulfilled the study's inclusion and exclusion criteria. The largest sample size calculated was 176, with a 5% level of significance and power of study set at 80%.

Research Tool

A self-administered structured questionnaire in English version was used to assess knowledge and attitude of the participants regarding geriatric. Participation in this study was voluntary and anonymous. The questionnaire used in

this study consisted of three sections:

Section A: This section includes 9 basic sociodemographic questions to identify the age, gender, ethnicity, religion, marital status, designation, year of working experience in clinical field of doctors, history of caring for an elderly adult and current living with elderly status.

Section B: This section is regarding the geriatric knowledge. It is subdivided into 2 parts:

- Part 1 contains 12 true-false questions which are evidence-based facts about aging.
- Part 2 contains 9 single-best answer, scenario-based multiple choice questions about medical assessment or management.

For both sections, 1 mark was awarded for a correct answer, zero marks were given for 'Don't Know' and incorrect answer. The maximum score is 18. More than 60% of correctly answered questions are considered good knowledge [11].

Section C: This section comprises of 14 questions to assess their attitudes toward elderly using a 5-point Likert scale: 5 positively worded statements (item 1, 4, 7, 9 and 14) and 9 negatively worded statements (item 2, 3, 5, 6, 8, 10, 11, 12 and 13) were rated on a scale ranging from "Strongly disagree (1 point)" to "Strongly agree (5 points)" and a rating of 3 points indicating a neutral response.

Score on negatively worded statements were reversed before being added to the scores on positively worded statements to produce a total score. The total score was then divided by 14 to produce a mean score. A score above 3.5 (score >3.5) indicates positive attitude [12].

The validity and reliability of this questionnaire had been tested in the previous study. The first section of the aging knowledge test is adapted from Facts on Aging Quiz (FAQ) [13]. The second section of knowledge test about medical or management is adapted from University of California at Los Angeles (UCLA) Geriatric Knowledge Test (GKT) for Primary Care Resident [14] and GKT for Medical Students [15]. The questions were reviewed by an Emergency Physician and a Geriatric Physician. To verify the questions' reliability, a pilot study was conducted among 30 doctors at ED Hospital USM. 3 items (item 3, 6, 12) from Knowledge test Section 1 were dropped off to achieve a Cronbach alpha score of 0.62. Others remain unchanged. The attitude questions were adapted from modified UCLA-Geriatrics Attitudes Scale (GAS) questionnaire by Chua et al. [16]. The Cronbach alpha score was 0.68. No changes of question were required.

Data Collection

The questionnaire was distributed to the eligible participants during their convenient time. The participants were briefed on how to complete the questionnaire by the researcher and written consent was obtained. Participation was voluntary, and no benefits or incentives were given to participants. Respondents were instructed to complete the questionnaire with the presence of researcher at all times to clarify any phrases or terms. The questionnaires should be completed within 30 minutes and the form will be double-checked for its completeness.

Data Analysis

Data entry and analysis were done using International Business Machines Corporation-Statistical Package for the Social Sciences (IBM-SPSS) for Windows, version 26.0 (SPSS, Inc. Chicago, Illinois). Descriptive statistics were expressed as frequency and percentages for independent variable. Doctor's GKT score is calculated as the percentage of correct answer questions and GAS is calculated as the average Likert scale rating across all items for each respondent. Multiple logistic regressions were employed to determine the significant associated factors for good geriatric knowledge level and positive attitude toward elderly among doctors in ED Hospital USM. All variables with p-values of less than 0.25 from univariable analysis (simple logistic regression) and clinically important variables were chosen for multiple logistic regression analysis. Pearson's correlation coefficient was used to assess the correlation between doctors' knowledge and attitudes toward elderly (correlation between GKT and GAS). All differences are significant at p-values less than 0.05 ($p < 0.05$). A correlation coefficient of 0.1-0.3 is considered as weak, 0.3-0.5 as moderate and >0.5 as strong correlation.

Ethical Approval

This study received ethical board approval from the Human Research Ethics Committee of Universiti Sains Malaysia (Ref: USM/JEPeM/19090544). During the study, all data involving the samples were confidential and only the researcher and the team had access to it. The researcher declared no conflict of interest with regard to this study.

RESULTS

Demographic Characteristic

A total of 198 respondents participated in the study. The majority of responders were females (50.5%) and age group of 31 to 35 years old (49.0%). The majority of those who

responded were Malay (76.2%) and Muslim (80.2%). More than half of the respondents were single/ divorced (51.5%) and had 4 to 10 years of working experience (51.5%). House officers were the largest group of respondents (32.8%).

The majority of respondents had history of living with elderly individuals (81.8%), however, most of them do not live with elderly individual now (53.5%). Details on socio-demographic characteristics are shown in Table 1.

Table 1. Socio-demographic characteristics of respondents (n=198)

Variables	n (%)
Gender	
Male	98 (49.5)
Female	100 (50.5)
Age	
26 - 30 years old	89 (44.9)
31 - 35 years old	97 (49.0)
36 and above	12 (6.1)
Ethnicity	
Malay	151 (76.2)
Chinese	20 (10.1)
Indian	13 (6.6)
Others	14 (7.1)
Religion	
Islam	159 (80.2)
Buddhism	17 (8.6)
Hindu	10 (5.1)
Others	12 (6.1)
Marital status	
Single/divorced	102 (51.5)
Married	96 (48.5)
Job position	
House officer	65 (32.8)
Service medical officer	26 (13.2)
Postgraduate Year 1	35 (17.7)
Postgraduate Year 2	24 (12.1)
Postgraduate Year 3	21 (10.6)
Postgraduate Year 4	27 (13.6)
Working experience	
Less than 4 years	88 (44.5)
4 - 10 years	102 (51.5)
More than 10 years	8 (4.0)
History of taking care an elderly person	
No	36 (18.2)
Yes	162 (81.8)
Currently living with elderly	
No	106 (53.5)
Yes	92 (46.5)

Level of geriatric knowledge and attitudes toward elderly

As for assessment of geriatric knowledge and attitudes toward elderly, the majority of the respondents reported to

have poor geriatric knowledge level (76.3%). More than half of the respondents, on the other hand, reported a positive attitude toward the elderly (53.5%). Details on knowledge and attitudes level toward elderly are shown in Table 2.

Table 2. Level of geriatric knowledge and attitudes towards elderly among doctors in the Emergency Department (n=198)

Variables	Frequency, n (%)	Mean (\pm SD)
Knowledge test score		
Poor (\leq 60%)	151 (76.3)	44.8 (\pm 9.18)
Good ($>$ 60%)	47 (23.7)	65.95 (\pm 6.20)
Attitude		
Negative (\leq 3.5)	92 (46.5)	3.26 (\pm 0.21)
Positive ($>$ 3.5)	106 (53.5)	3.87 (\pm 0.25)

Factors associated with good geriatric knowledge level

Multiple logistic regressions were employed to determine the significant associated factors for good geriatric knowledge level among doctors in ED Hospital USM. All variables with p-values of less than 0.25 from univariable analysis (simple logistic regression) and clinically important variables were

chosen for multiple regression analysis. The variables with p-values of less than 0.25 in univariable analysis were age category, religion, job designation and working experience. From multiple logistic regression analysis, there was no significant adjusted factor associated with good geriatric knowledge level among doctors in Emergency Department Hospital USM (Table 3).

Table 3. Factors associated with good geriatric knowledge level among doctors in Emergency Department Hospital USM using multiple logistic regression (n=198)

Factors	β	S.E.	Wald statistics (df)	Adjusted OR (95% CI)	p-value
Age category					
26–30 years old				1	
31–35 years old	-0.06	0.77	0.01 (1)	0.95 (0.21, 4.29)	0.942
36 and above	-20.05	10280.81	0.00 (1)	0.00 (0.00, 0.00)	0.998
Religion					
Others				1	
Islam	-0.32	0.72	0.20 (1)	0.73 (0.18, 2.96)	0.104
Buddhism	0.35	0.89	0.15 (1)	1.41 (0.25, 8.03)	0.696
Hindu	-0.29	0.96	0.08 (1)	0.75 (0.11, 4.99)	0.768
Job designation					
House officer				1	
Service medical officer	0.59	0.64	0.85 (1)	1.81 (0.51, 6.43)	0.358
Postgraduate Year 1	0.54	1.09	0.25 (1)	1.72 (0.20, 14.53)	0.618
Postgraduate Year 2	-0.31	1.21	0.06 (1)	0.73 (0.07, 7.83)	0.795
Postgraduate Year 3	-0.18	1.24	0.02 (1)	0.84 (0.07, 9.59)	0.888
Postgraduate Year 4	1.28	1.18	1.17 (1)	3.61 (0.35, 36.67)	0.279
Working experience					
Less than 4 years				1	
4–10 years	0.92	1.08	0.73 (1)	2.52 (0.30, 20.90)	0.393
More than 10 years	-18.19	11863.86	0.00 (1)	0.00 (0.00, 0.00)	0.999

*p-value <0.05

No multicollinearity and no interaction found.

Hosmer Lemeshow test, p-value=0.945

Classification table 77.8% correctly classified.

Area under Receiver Operating Characteristics (ROC) curve was 73.1%.

Factors associated with positive attitude toward elderly

Multiple logistic regressions were employed to determine the significant associated factors for positive attitude toward elderly among doctors in ED Hospital USM. The variables with p-value of less than 0.25 in univariable analysis were age category, religion, job designation and working experience. From multiple logistic regression analysis, the significant adjusted factor associated with positive attitude toward elderly was age category of 36 and above when

other variables were controlled. (Table 4). For age category, doctors in age category of 31 – 35 years old had 1.22 times higher odds to have positive attitude toward elderly, as compared to younger doctors in the age of 26 – 30 years old (AOR 1.22; 95%CI: 0.36, 4.20; p=0.923). Meanwhile, doctors in age category of 36 and above were less likely to have positive attitude toward elderly, as compared to younger doctors in the age of 26 – 30 years old (AOR 0.08; 95%CI: 0.01, 0.99; p=0.049).

Table 4. Factors associated with positive attitudes toward elderly among doctors in Emergency Department Hospital USM using multiple logistic regression (n=198)

Factors	β	S.E.	Wald statistics (df)	Adjusted OR (95% CI)	p-value
Age category					
26 – 30 years old				1.00	
31 – 35 years old	0.25	0.66	0.14 (1)	1.29 (0.35, 4.70)	0.702
36 and above	-2.52	1.31	3.68 (1)	0.08 (0.01, 0.89)	0.042*
Religion					
Others				1.00	
Islam	-0.30	0.70	0.18 (1)	0.74 (0.19, 2.91)	0.665
Buddhism	-0.46	0.85	0.29 (1)	0.63 (0.12, 3.36)	0.591
Hindu	20.75	12556.03	0.00 (1)	0.00 (0.00, 0.00)	0.999
Job designation					
House officer				1.00	
Service medical officer	-0.45	0.52	0.74 (1)	0.64 (0.23, 1.76)	0.387
Postgraduate Year 1	-1.41	1.05	1.79 (1)	0.24 (0.03, 1.92)	0.180
Postgraduate Year 2	-1.65	1.14	2.08 (1)	0.19 (0.02, 1.80)	0.148
Postgraduate Year 3	-1.24	1.14	1.18 (1)	0.29 (0.03, 2.70)	0.277
Postgraduate Year 4	-0.91	1.13	0.65 (1)	0.40 (0.04, 3.70)	0.422
Working experience					
Less than 4 years				1.00	
4 – 10 years	1.47	1.06	1.93 (1)	4.38 (0.54, 35.23)	0.165
More than 10 years	2.34	1.58	2.19 (1)	10.38 (0.47, 299.52)	0.138

*p-value <0.05

No multicollinearity and no interaction found.

Hosmer Lemeshow test, p-value=0.312

Classification table 61.6% correctly classified.

Area under Receiver Operating Characteristics (ROC) curve was 67.4%.

Correlation between Geriatric Knowledge Test (GKT) score with Geriatric Attitudes Scale (GAS) score

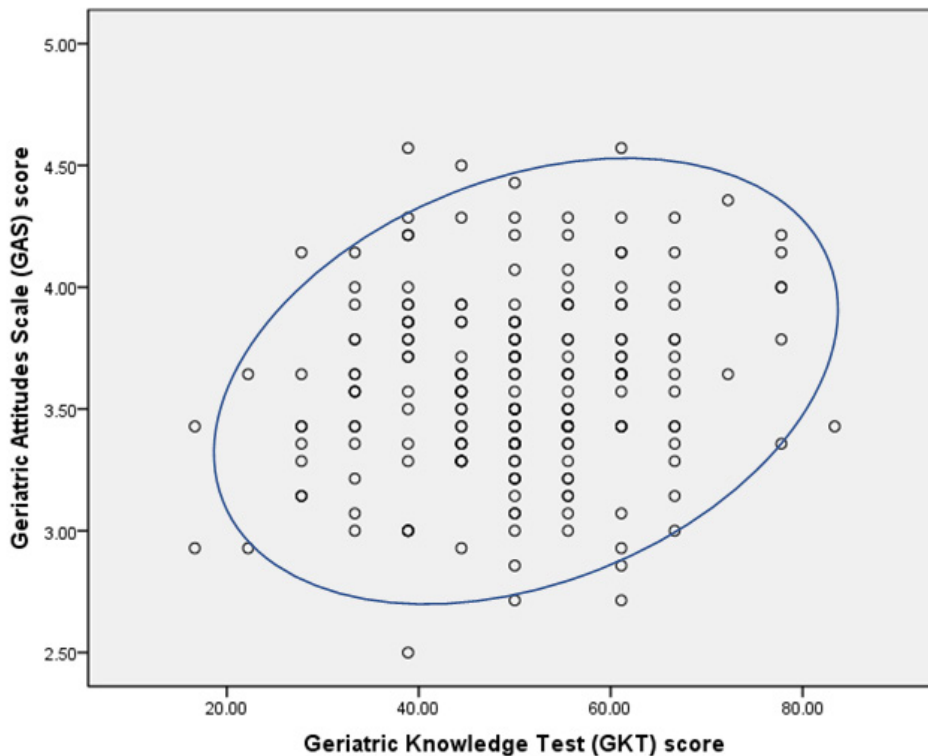
Pearson correlation was employed to assess the correlation between GKT score with GAS score. There was a significant

weak positive correlation ($r=0.154$, $p=0.031$) between knowledge and attitudes toward geriatric. Overall, the higher the level of geriatric knowledge, the more positive attitudes of doctors toward elderly (Figure 1). Details are shown in Table 5.

Table 5. Correlation between Geriatric Knowledge Test (GKT) score with Geriatric Attitudes Scale (GAS) score (n=198)

	Geriatric Attitudes Scale (GAS) score	
	Correlation coefficient, r	p-value*
Geriatric Knowledge Test (GKT) score	0.154	0.031

*p-value <0.05

**Figure 1.** The relationship between Geriatric Knowledge Test (GKT) score with Geriatric Attitudes Scale (GAS) score.

DISCUSSION

Poor knowledge about geriatric and factors affecting it

This is the first local study to assess geriatric knowledge among ED doctors. The result showed that majority of the doctors in ED Hospital USM had poor geriatric knowledge level (76.3%). This study's findings mirror the findings in Yang et al. [17] who discovered that general practitioners had poor level of knowledge about aging because majority of general practitioners in the community had not undergone adequate geriatric training and education. In the study, no significant factors were identified to be associated with good geriatric knowledge among doctors at ED Hospital USM.

In our analysis of curriculum, the important subjects pertaining to aging population are not included in the

curriculum at most of the local medical schools [10]. One of the reasons was that there was no opportunity to be included in the overburdened curriculum. In addition, 40% of residency directors in emergency medicine programmes in the United States (US) believed that geriatric emergency medicine was insufficient, and 53% of residency-trained practising physicians reported that inadequate time was spent on geriatric topics during their residency training [18]. In response to the aforementioned imperatives, a dedicated geriatric education programme for doctors in ED is urgently needed to reinforce positive geriatric care experiences and enhance doctor's geriatric knowledge in order to meet the demands of an aging population. As a result, healthcare service to elderly patients will improve, with higher patient satisfaction and lesser risk of adverse outcomes [19]. Both

Beise et al. [19] and Hogan et al. [20] had demonstrated that geriatric curriculum has positive impact on residents' geriatric knowledge. Knowing poor geriatric knowledge level among ED doctors, it is time for geriatric specific teaching to be included, even if the teaching module is overcrowded. Hogan et al developed a high-impact series of topics important to emergency medicine (EM) practice in order to maximise EM knowledge of geriatric emergency care in minimal time. It has been proven those 2 hours of specific curriculum improved knowledge significantly [20].

Positive attitudes toward elderly and factors affecting it

Doctors' attitudes are crucial in providing better care to elderly patients [21]. Our study demonstrated more than half of doctors in the ED Hospital USM held positive attitudes toward the elderly (53.5%). This is in keeping with a study conducted among emergency medicine residents in US [22]. Similar findings were reported in studies involving non-emergency medical doctors undertaken elsewhere in the world, including US [12,23,24], Turkey [25] and Australia [26]. Doctors' attitudes toward elderly were shaped by cultural, social and religious background. Many Asian societies have adopted traditional oriental norms of honoring older adults since childhood. The multicultural society of Malaysia had similar values, cultural and religious norms when it comes to elderly [27,28].

Age was shown to be significantly associated with positive attitudes toward elderly patient in our study. When compared to younger group of doctors, doctors in age category of 36 and above were less likely to have positive attitudes toward elderly. This finding is consistent with the findings of another study, which found that younger healthcare professionals have more positive attitudes toward elderly [29]. In contrast, Leung et al. [26] study indicated that older doctors held more positive attitudes toward older people than younger doctors [26]. Multiple medical, social, financial and communication challenges impede the care of elderly patients. Is it possible that repeating this experience hardens the attitude of more senior emergency doctors? We are aware that geriatric education has only recently gained attention, with programmes slowly augmenting training in this field. Therefore, more senior emergency doctors are likely to have less training in care of elderly patients. Could a lack of preparation and repeated negative experiences harden attitudes toward elderly patients? As the elderly population grows, we must be aware of the negative experiences described above and ensure that programmes reinforce

positive geriatric care experiences in order to improve emergency doctors' attitudes toward this challenging and vulnerable population.

Significant correlation between knowledge and attitude

Fear and a lack of knowledge and skills needed to care for elderly patients have been proven in previous studies to be the root of negative attitudes toward elderly [30]. Thus, we expect that by improving the knowledge, it can enhance doctor's attitudes toward the care of this vulnerable population. In the current study, however, there was a weak positive correlation between knowledge and attitudes toward the elderly. This finding is in agreement with the results of Eltantawy et al. [27]. It appears that simply providing a geriatric course will not change doctors' attitudes toward the elderly. Attitudes are supposed to be taught by trial and error or through a socialization training process. We must concentrate on using this indoctrination to influence doctors' views about the elderly. Educator should devise instructional methodologies to support this form of socialization in geriatric education, both in lecture and clinical course.

Other factors that influenced knowledge and attitudes toward elderly patients should be investigated, as recognizing these characteristics could aid in the development of initiatives to improve the quality of care delivered to Malaysia's senior citizens. We believe that implementing a creative geriatric and structured teaching learning method will improve geriatric knowledge and skills while also increase confidence and self-efficacy, resulting in more favorable attitudes toward the elderly and better caregiving.

CONCLUSION

In conclusion, majority of ED doctors in Hospital USM exhibited positive attitudes toward the elderly but had an unfavourable geriatric knowledge level. Senior doctors were less likely to have positive attitude toward elderly patients. Good geriatric knowledge was associated with positive attitudes of emergency doctors toward the elderly. Thus, employing a more creative and structured geriatric teaching learning method will enhance ED doctors' knowledge and attitudes about geriatric patient care.

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