Research

Paramedics' perceptions, knowledge and skills regarding emergency psychiatric patients in Riyadh, Saudi Arabia

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Abstract

Introduction

Mental healthcare experts worldwide have been calling for increased contributions from medical professionals and organisations to improve the skills of healthcare practitioners and their coordination with mentally ill patients. However, the contributions and roles of paramedics in treating the mentally ill are still considered limited, and few studies have been conducted on paramedics' judgement and decision-making when caring for patients with mental illness. This study aimed to assess paramedics' perceptions, knowledge and skills in dealing with psychiatric emergencies.

Methods

A cross-sectional study was conducted among participants from the Saudi Red Crescent Authority; different hospitals in Riyadh were invited from September to October 2019 to complete a validated structured questionnaire. The Statistical Package for the Social Sciences version 22 (SPSS 22) software was used for data analysis.

Results

A total of 124 participants were included in this study; their mean age was 29.93 years, 95.2% were male, 78.9% had a bachelor degree and 12.1% had higher education. The majority of participants agreed that it is important for paramedics to know about mental illness (91.1%) and stated that they were comfortable managing a person with mental illness (63.7%). Almost half (49.6%) disagreed with the statement that psychiatric disorders are caused by religious or supernatural factors, whereas 24% were unsure, and 26.4% agreed. On assessing paramedics' knowledge and skills, 31.4% scored above average, 42% scored average (average defined as answering six to seven out of 10 questions correctly), and 26.6% scored below average. However, when asked if they carry out the mental status examination on mentally ill patients, 66.1% stated 'no'.

Conclusion

This study indicated that the majority of paramedics have positive perceptions regarding mental illness; moreover, it was shown that paramedics are knowledgeable and trained in dealing with emergency psychiatric patients. Further investigation regarding the practice and role of paramedics is necessary.

Keywords:

paramedics; emergency medical services; psychiatric emergency situations; mental health

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Introduction

Mental health and illness are considered to be one of the major global health priorities. Mental healthcare systems around the world have been calling to increase the participation and contribution of medical professionals and organisations in mental health, to improve the skills of all healthcare practitioners and their coordination with people with mental disorders (1).

Despite these calls, the contributions and roles of paramedics in caring for mentally ill patients are considered restricted. Consequently, research into paramedic judgement and decision-making in caring for patients with mental illness has been limited. When reforming the preparedness and involvement of healthcare practitioners, it is important to include paramedics as they recognise, assess and manage mental illness in their everyday practice. The ability of paramedics to deal with these occasions, and how they can contribute to caring for the mentally ill in emergency primary health contexts, has not been the subject of sustained systematic research or inquiry to date (2).

Mental illness is a major global health issue. Approximately 450 million people worldwide suffer from mental health problems (3). A psychiatric emergency situation (PES) is an acute disturbance of behaviour, thought or mood of a patient that, if untreated, may lead to harm, either to the individual or to others in the community. According to the Saudi Red Crescent Authority (the primary and governmental authority licensed to provide pre-hospital care in Saudi Arabia), out of the 493,153 cases they received in 2015 in Saudi Arabia, 4381 were PESs, 242 were cases of illegal drug abuse, and 251 were suicide attempts. PESs were ranked as the fourth most requested type of assistance in Saudi Arabia (4).

The incidence, treatment and evaluation of PESs have been examined in Germany. Five typical psychiatric emergencies were assessed using a questionnaire; a correct diagnosis was given by 71% of the emergency room (ER) physicians and 39% of the paramedics. However, only 32% of the ER physicians and 14% of the paramedics provided the correct answers for the treatment and management of the five conditions. The results varied between the ER physicians and paramedics. Both groups rated 'importance of knowledge about PESs' as high; however, paramedics' ability to diagnose correctly as well as provide with the correct treatment and management was low. The study also found that PESs were the third most requested type of assistance in Germany (5).

The inappropriate use of pre-hospital transportation was examined which has been a significant problem from the perspective of emergency medical technicians (EMTs) and patients (6). Another study evaluated EMTs' ability to apply protocols in the assignment of transportation options. The majority of patients with psychiatric complaints and dementia were under-triaged. Moreover, the protocols did not specifically address the identification of mental illness to any warrantable

level. The study recommended the redevelopment of protocols that address mental illness and behavioural disorders as well as further education about the assessment of this high-risk group (7).

Paramedics are often the first at the scene of a PES. Therefore, paramedics need to have a general knowledge of mental illness in order to identify the symptoms and how to approach a medically ill patient in the pre-hospital setting. However, most of the paramedics (87.4%) surveyed in one study reported inadequate knowledge of the emergency medical services (EMS) assessment of mental health emergencies (8).

This study aimed to assess paramedics' perceptions, knowledge and skills in dealing with psychiatric patients.

Methods

A cross-sectional study was conducted in Riyadh, Saudi Arabia, among pre-hospital practitioners. Paramedics were the targeted population of this study. EMTs and other medical personnel were excluded from this study. This study took place at the Saudi Red Crescent Authority (SRCA) and EMS-based hospitals in Riyadh.

Sampling technique and sample size

In this study, non-probability convenience sampling was used, with the assumption that there were 182 paramedics in Riyadh (9-11). The sample size was calculated with a margin of error of 5% and a confidence level of 95%. The minimum recommended sample size was 124.

Instrument

We formulated a structured questionnaire with 21 questions. The research variables were demographics (age, gender, level of education and years of work experience) and questions based on the paramedics' perceptions, knowledge and skills. After obtaining Institutional Review Board approval, a pilot study was conducted to assess whether any changes were required for validation.

Data analysis

Microsoft Excel was used for data entry and the Statistical Package for the Social Sciences (SPSS 22) software was used for the statistical analysis of the data. The data were checked for normality using the Shapiro-Wilk test. Frequencies and percentages were used for categorical variables. Mean and standard deviation were used for continuous variables if normally distributed; median and interquartile range were used for variables that were not normally distributed. Perceptions in dealing with psychiatric patients were expressed in frequencies and percentages. To measure knowledge and skills, a score of 1 was given for correct answers. The relationship of education level or experience with perception was tested using Pearson's chi-square test and Fisher's exact test with a 5% significance level. A p-value of <0.05 was considered statistically significant. Additionally, the relationships of knowledge and skills with years

of education and work experience were tested using the Mann-Whitney U test.

Results

A total of 124 paramedics participated in this study (124 out of 182 paramedics from Riyadh) with an 83% response rate; the mean age was 29.93 years, (95.2%, n=118) were male and (4.8%, n=6) were female. The majority (87.9%, n=109) of participants had a bachelor degree, whereas 12.1% (n=14) had higher education. The majority of the participants (56.4%, n=70) had less than 6 years of work experience, while (43.6%, n=54) had 6 or more years of work experience (Table 1).

Paramedics' perceptions of emergency psychiatric patients
 The results showed that the majority of paramedics (91.1%, n=113) had a positive attitude regarding knowledge of mental illness and PESs. The majority of the participants (60.5%,

n=75) also reported confidence in their training and dealing with psychiatric patients. However, when participants were asked if psychiatric disorders were caused by religious or supernatural factors, almost half either agreed (25.8%, n=32) or were unsure (25.8%, n=32). In addition, the majority of the participants (47.6%, n=59) agreed that agitated patients who require sedation should be transported by the police instead of EMS (Table 2).

Participants were asked if they would provide the same quality of care to psychiatric patients as they would provide to other patients, and the results showed that paramedics with less than 6 years of work experience agreed more than their counterparts with 6 or more years of work experience (p=0.030). The results also showed that paramedics with 6 or more years of experience disagreed more than those with less than 6 years of work experience if they thought that psychiatric disorders are caused by religious or supernatural factors (p=0.015). Other questions indicated no significant associations between their work experience and perceptions (Table 3).

Table 1. Demographics of the study population (n=124)

	%	N	Mean	SD	Min	Max
Age		124	29.93	4.691	21	48
Gender						
Male	95.2	118				
Female	4.8	6				
Education						
Bachelor degree	87.9	109				
Master degree	11.3	14				
PhD	0.8	1				
Experience						
<3 years	39.5	49				
3-5 years	16.9	21				
6-9 years	22.6	28				
>9 years	21.0	26				

Table 2. Paramedics' perceptions of emergency psychiatric patients

Statements	Agree N (%)	Unsure N (%)	Disagree N (%)
Is it important for paramedics to have knowledge of mental illness?	113 (91.1)	5 (4.0)	6 (4.8)
Do you feel adequately trained to deal with mental health emergencies?	75 (60.5)	36 (29.0)	13 (10.5)
Would you be comfortable managing a person with mental health illness?	79 (63.7)	30 (24.2)	15 (12.1)
Would you provide the same quality of care to psychiatric patients as you would provide to other patients?	84 (67.7)	22 (17.7)	18 (14.5)
When treating a psychiatric patient, do you believe that you are required to obtain consent from the patient himself as you are for any other patient?	57 (46.0)	30 (24.2)	37 (29.8)
Do you think that psychiatric disorders are caused by religious or supernatural factors?	32 (25.8)	32 (25.8)	60 (48.4)
Do you think that people who are agitated and require sedation and restraint should be transported by the police?	59 (47.6)	13 (10.5)	52 (41.9)

Paramedics' knowledge and skills in handling psychiatric emergency

The result showed that the average of a question getting answered correctly was 66.79% indicating that the participants were knowledgeable of basic necessities; however, when the participants were asked if they had ever heard of the mental status examination (MSE), only half of them (50.8%, n=63) answered 'yes'. Although a good number of the participants knew about MSE, the majority (66.1%, n=82) answered 'no' when asked whether they practised it with their patients and only (33.9%, n=42) answered 'yes' (Table 4).

To measure knowledge and skills, 10 questions were asked, and a score of 1 was given for each correct answer. The results revealed that a minimum of three questions (indicated by 2.4% of the participants), and a maximum of 10 questions (indicated by 5.6% of the participants) were answered correctly, respectively. The median (Q2) knowledge and skill scores were 7 (5,8). Overall, the average of correct answers was six to seven questions. 26.6% of the participants scored below average, whereas only 17.7% of participants scored above average (answered eight or more questions correctly, Table 5).

Discussion

The primary purpose of this study was to assess paramedics' perceptions, knowledge, and skills toward psychiatric emergencies. Earlier research suggested that the judgement and decision-making of paramedics were limited, and few studies have been conducted on paramedics in the emergency psychiatric field (2). The items in the questionnaire were selected based on the knowledge and skills relevant to the role of paramedics, reflecting the clinical practice guidelines in Riyadh, Saudi Arabia. Our results showed a desirable attitude toward regarding psychiatric patients, and the average knowledge and skills among the participants were satisfactory.

The results of our study revealed that 91.1% of participants agreed that it is important for paramedics to have knowledge of mental illness (Table 2). Similarly, a study carried out in Victoria, Australia indicated that 100% of the participants agreed with the statement (12). This indicates paramedics' awareness of the importance of learning about mental disorders.

Table 3. Associations between paramedics' perceptions associated and years of work experience

Statements	Years of experience	Agree	Unsure	Disagree	p-value
Would you provide the same quality of care to psychiatric patients as you would provide to other patients?	<6	61.4%	25.7%	12.9%	0.030*
	≥ 6	75.9%	7.4%	16.7%	
Do you think that psychiatric disorders are caused by religious or supernatural factors?	<6	32.9%	30.0%	37.1%	0.015*
	≥ 6	16.7%	20.4%	63.0%	

*Significant at 5%

Table 4. Paramedics' knowledge and skills in handling psychiatric emergency patients

Statements	Correctly answered N (%)	Incorrectly answered N (%)
Are all mentally ill patients unstable and dangerous? *(No)	98 (79.0)	26 (21.0)
Do you think that a psychiatric emergency is an acute disturbance of the behavior, thought or mood of the patient? *(Yes)	102 (82.3)	22 (17.7)
Are all patients with altered mental status suffering from a purely psychiatric condition? *(No)	102 (82.3)	22 (17.7)
Have you ever heard of the mental status examination (MSE)? *(Yes)	63 (50.8)	61 (49.2)
If yes, do you practise it with your patients? *(Yes)	42 (33.9)	82 (66.1)
When dealing with a psychiatric patient that is experiencing psychosis, should you immediately rush the patient to the medical facility? *(No)	63 (50.8)	61 (49.2)
When dealing with a psychiatric patient, should you stay at the site of the emergency and take your time to build a relationship with the patient? *(Yes)	87 (70.2)	37 (29.8)
Should a restrained agitated patient be transported in a prone position? *(No)	103 (83.1)	21 (16.9)
When you want to chemically restrain a psychiatric patient, should you use a short-acting benzodiazepine? *(Yes)	91 (73.4)	33 (26.6)
Do you have to sit at a 45° angle to the patient so you do not invade their personal space? *(Yes)	77 (62.1)	47 (37.9)

* Answers between parentheses is the expected correct answer

One of our major findings reflects the paramedics' confidence level during the management of psychiatric patients. In a previous study in Victoria, 67% of participants agreed that they would be comfortable managing a patient with mental health illness (12). In our study, 63.7% of participants agreed (Table 2).

Mental Status Examination is part of every mental health assessment and our findings showed that 66.1% of participants did not perform the test, even though the results showed that the participants had adequate knowledge and skills (Table 4). A similar study in South Africa reported that 64.2% of participants did not perform MSE as well (8). This may be due to many factors, such as lack of time at the scene or that paramedics use a quicker method of assessment of psychiatric situations such as the scene safety, and the severity of the case. Moreover, the participants were not asked if alternative standardised tools are being applied. Further investigation is needed to clarify these factors as paramedics need to gain an in-depth understanding of a patient's psychological behaviour in order to administer appropriate care. Also, training paramedics on MSE can be beneficial as this study showed lack of MSE practice in our local system.

A disappointing finding in our study was that the majority of participants agreed with a common misconception in Saudi society regarding mental illness; that physical or psychiatric symptoms have supernatural causes although paramedics have good knowledge and are well-educated medical health practitioners (13).

A study asked patients in Riyadh what they thought was the cause of auditory hallucinations (AH) and what was the best treatment for it. The patients gave the following responses as the cause: curse/magic (17%); Satan's/demons' voices (34%); pretence (17%). Regarding the best treatment, the responses were: no treatment (4%) and religious assistance (66%). Researchers from King Khalid National Guard Hospital surveyed 398 university graduate school teachers and undergraduate students at two universities in Jeddah. Participants were asked about the cause of epilepsy, and 40% of teachers and 50% of students reported 'possession by Jinns' as the cause, whereas

38% of the teachers and 47% of the students said it was a psychiatric illness. As for the treatment, 'reading the Qur'an' was reported as a treatment by 68% of the teachers and 82% of the students. These results come from the well-educated current generation and show that neurological and psychiatric symptoms are often correlated with religious and supernatural factors such as evil spirits and magic (14). Our results showed that 25.8% agreed, and 25.8% were unsure if psychiatric disorders were caused by religious or supernatural factors.

This study assessed paramedics' perceptions, knowledge and skills regarding emergency psychiatric patients in Riyadh, Saudi Arabia. The implication of this study finding can be of a great value to psychiatric patients in our community. It showed that further education about the root causes of psychiatric disorders need to be delivered to practising paramedics. The findings can also assist in establishing local practice guidelines that will benefit psychiatric patients in our community.

Limitations

The limitations of this study were that only paramedics from tertiary hospitals and SRCA were targeted; therefore, the participants were well-educated and trained, which justifies the positive results. Another limitation is that this study used a survey, and responses were voluntary and subjective. These responses may have been influenced by several factors, including responders' personal beliefs, level of training, duration of EMS experience, discussion of the case with others, or participants' undisclosed life experiences relating to mental illness. Several EMS providers did not answer some of the demographic questions or may have incorrectly answered them. The reasons behind this are unclear, and their responses may have altered our results. The major limitation of this study was the small sample size, which did not allow us to compare gender because males are more dominant in the field. Additionally, there was a lack of diversity in the level of education and work of experience because of the small sample size, which made us unable to fairly measure the association of the paramedics' perceptions, knowledge or skills with their level of education

Table 5. Knowledge and skills score

Questions answered correctly (out of 10)	Frequency	Percent	IQR		
3.00	3	2.4	Q1	Q2 (Median)	Q3
4.00	8	6.5			
5.00	22	17.7			
6.00	28	22.6			
7.00	24	19.4			
8.00	17	13.7	5	7	8
9.00	15	12.1			
10.00	7	5.6			
Total	124	100.0			

or work of experience. The association was not statistically significant, except for what has been proposed previously.

Conclusion

This study indicates that the majority of paramedics have positive perceptions of emergency psychiatric patients. It was also shown that most paramedics are adequately knowledgeable and trained in dealing with such patients. Seminars and workshops on the assessment and management of mental health patients are needed to sustain and improve the knowledge and skills of paramedics. Further national-level studies are recommended. Another recommendation is to assess paramedics' ability to understand whether the psychiatric presentation has a medical cause, and how to deal with medical emergencies in psychiatric patients.

Competing interests

The authors declare no competing interests. Each author of this paper has completed the ICMJE conflict of interest statement.

References

1. Commonwealth Department of Health and Aged Care. The National Mental Health Report 2000: changes in Australia's mental health services under the First National Mental Health Plan of the National Mental Health Strategy 1993-1998. Canberra: Australian Government; 2000.
2. Shaban R. Paramedics' clinical judgment and mental health assessments in emergency contexts: research, practice, and tools of the trade. *Australasian Journal of Paramedicine* 2015;4.
3. World Health Organization. 2005. Incidence and prevalence of mental illness. Available at: www.who.int/mental_health/en/
4. Saudi Red Crescent Authority. Incidence and prevalence of PES. Available at: www.srca.org.sa/ar/Statistics/
5. Pajonk FG, Bartels HH, Biberthaler P, Bregenzer T, Moecke H. Psychiatric emergencies in preclinical emergency service: incidence, treatment and evaluation by emergency physicians and staff. *Der Nervenarzt* 2001;72:685-92.
6. Richards JR, Ferrall SJ. Inappropriate use of emergency medical services transport: comparison of provider and patient perspectives. *Acad Emerg Med* 1999;6:14-20.
7. Schmidt TA, Atcheson R, Federiuk C, et al. Hospital follow-up of patients categorized as not needing an ambulance using a set of emergency medical technician protocols. *Pre-hosp Emerg Care* 2001;5:366-70.
8. Daniel J. 2019. Assessing the knowledge of emergency medical care practitioners in the Free State, South Africa, on aspects of pre-hospital management of psychiatric emergencies. Available at: <http://www.panafrican-med-journal.com/content/article/33/132/full/> [Accessed 19 December 2019].
9. Saudi Red Crescent Authority. 2019. Available at: www.srca.org.sa/en/About/About [Accessed 27 March 2019].
10. Emergency, Disasters and Ambulatory Transportation General Department. 2020. Available at: www.moh.gov.sa/Ministry/Forms/EDATGD/Pages/default.aspx [Accessed 27 March 2019].
11. Department of Emergency Medicine. Available at: <http://ngha.med.sa/English/MedicalCities/AIRiyadh/MedicalServices/Pages/EmergencyMedicine.aspx> [Accessed 27 March 2019].
12. Emond K, Furness S, Deacon-Crouch M. Undergraduate paramedic students' perception of mental health using a pre and post questionnaire. *Australasian Journal of Paramedicine* 2015;12.
13. Psychiatry. In: Saudi Arabia, *American Journal of Psychiatry*. 2006. Available at: <https://ajp.psychiatryonline.org/doi/10.1176/ajp.140.11.1455> [Accessed 29 May 2020].
14. Wahass S, Kent G. A comparison of public attitudes in Britain and Saudi Arabia towards auditory hallucinations. Available at: <https://journals.sagepub.com/doi/10.1177/002076409704300303> [Accessed 29 May 2020].