

Perception of undergraduate emergency medical services students about mental health

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Abstract

Mental illness significantly impacts morbidity and mortality; however, research on paramedic students' perceptions and attitudes toward individuals with mental health presentations is limited. The incidence of mental disorders in Saudi Arabia is increasing, and knowledge about them would enhance the ability of the paramedics to provide more help to the population. This study evaluates the perceptions of undergraduate emergency medical students before and after completing a mental health education block. We conducted a quasi-experimental design study for fourth year students who were enrolled in a mental health block and have been added to King Saud bin Abdulaziz University for Health Sciences and were asked to partake in pre- and post-subject surveys. They were requested to share their perspectives on mental health through electronic questionnaires. With a total of 83 participants,

averaging 21.33 years old, from three regions in Saudi Arabia, we found significant differences in the following questions before and after the mental health block: participants became more comfortable managing mental health issues (strongly agreeing increased from 10.8% to 36.1%). Moreover, perceptions about psychosis and violence changed (from agreeing to disagreeing). Questions on racism and trauma showed a significant increase in the strongly agreeing. The majority agreed more that neglect can cause mental illness (strongly agreeing increased from 30.1% to 63.9%). Lastly, exposure to rape was significantly strongly associated with mental disorders (69.9%, P value <0.0001). Our study showed positive shifts in attitudes and increased mental health knowledge after introducing a mental health block. The block not only improved understanding but also holds promise for future paramedics in offering empathetic care. Overall, the study underscores the need for continuous mental health education in paramedic curricula for better readiness in addressing diverse population needs.

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Key words: Saudi Arabia; mental disorder; paramedics; student; perception; attitude.

Conflict of interest: the authors declare no conflict of interest.

Funding: none.

Ethics approval and consent to participate: this study was approved by the Ethics Committee of King Abdullah International Medical Center (IRB/2973/23).

Availability of data and materials: all data generated or analyzed during this study are included in this published article.

Received: 9 September 2024.
Accepted: 27 November 2024.
Early view: January 15 2025.

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Licensee PAGEPress, Italy
Emergency Care Journal 2025; 21:13073
doi:10.4081/ecj.2025.13073

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Introduction

Mental illness is a major global health concern, affecting individuals of all ages and contributing significantly to morbidity and mortality.¹ Mental health problems can vary through a wide range that affect persons' mentality and emotional sides and may impact their daily function and activity including mood disorders, eating disorders, neurodevelopmental troubles, trauma-related disorders, sleep-wake disorders, anxiety disorders, and psychotic disorders.^{2,3} Mental disorders rank as the fourth most prevalent group of illnesses contributing to disability among individuals aged 15 years to 44 years.⁴ In a previous large study spanning the years 1990 to 2019 conducted in 204 different countries, it was observed that the worldwide burden of disability-adjusted life-years attributable to mental disorders exhibited a notable escalation, rising from 80.8 million to 125.3 million. This signifies a substantial increase in the impact of mental disorders on global health over the recent period.⁵ The prevalence of mental health disorders increased by 25% globally during the first year of the COVID-19 pandemic.⁶ According to the World Mental Health Report that was made in 2022, almost one billion of the world population from various nations suffer from different types of mental disorders.⁷ In Saudi Arabia, the prevalence of mental health disorders remains high and continues to rise.⁸ Despite that, over the last three decades, Saudi Arabia has undergone significant transformations in its mental health care system, and mental disorders are still increasing.^{9,10} The establishment of Primary Health Care (PHC) centers across the nation aimed to enhance the identification and management of medical issues within the community. Presently, all Saudi residents obtain their health-care services from these centers, reflecting a comprehensive approach to address mental health concerns and improve their detection and treatment.¹¹

Some of the paramedic's responsibilities are to respond to

emergency calls related to mental health crises, including suicide attempts, acute psychotic episodes, and severe anxiety.¹² The character of calls received by paramedic services has transformed, now encompassing a higher volume of psychosocial and mental health elements.^{13,14} Over the last ten years, the evolving responsibilities of paramedics have led to the incorporation of supplementary skills and procedures designed to enhance pre-hospital care for various conditions.¹⁵ Previous research findings indicated that paramedics express a sense of insufficient education, training, and overall readiness in addressing mental health issues.^{16,17} A study examining paramedics' comprehension of mental health, taking into account their roles, educational background, and practical experience, revealed that additional education could enhance their ability to manage presentations related to mental health.¹⁶

A paramedic's understanding of mental illness directly influences their ability to deliver effective and compassionate care to individuals facing mental health challenges. It not only improves the accuracy of assessments but also contributes to creating a more supportive and empathetic environment during emergency interventions. Ongoing education and training in mental health are essential for enhancing the overall preparedness of paramedics to address the diverse needs of the populations they serve.¹⁸ In an effort to enhance students' readiness for managing mental health situations in pre-hospital care, the undergraduate emergency medical services curriculum at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) has incorporated a mental health block. This study seeks to investigate the impact of the newly introduced mental health educational block on the essential understanding of emergency medical students at KSAU-HS regarding the control of mental health presentations in pre-hospital settings. Additionally, the research aims to assess the perceptions of undergraduate emergency medical students both before and after completing the mental health block.

Materials and Methods

Study design and protocol

A quasi-experimental study was conducted at KSAU-HS in Saudi Arabia. Our study was implanted and reported in line with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.¹⁹ This study was approved by the Ethics Committee of King Abdullah International Medical Center (IRB/2973/23).

Criteria and sampling

All fourth-year Emergency Medical Services (EMS) students at KSAUHS among the three campuses were eligible for inclusion. We used a convenience sampling method. The fourth year students were 105, and for 95% confidence interval and a margin of error of 5%, at least 83 surveys are needed.

Data collection methods and tools

The questionnaire used for data collection consisted of two parts. The first part covered demographic characteristics, including age, gender, and campus. The second part comprised statements assessing EMS students' perceptions of mental health before and after completing the mental health block. The questionnaire was adapted from a previously validated tool by Emond *et al.*²⁰ The survey was conducted online using an electronic tool, specifically Google Forms. The survey was distributed twice: at the beginning and upon the end of the advanced mental health subject. Students

were notified that by filling out and submitting the electronic survey, their consent was assumed. They had the option to withdraw from the study at any point until the final submission of the electronic survey, as the responses, once submitted, could not be associated with individual students.

Data analysis

Descriptive statistical techniques were utilized to outline the different variables of the participants concisely. For continuous parameters, the summary included the presentation of mean values accompanied by their respective Standard Deviation (SD). In the case of categorical parameters, they were represented as frequencies and percentages. The Wilcoxon signed-rank test was employed to compare ordinal outcomes between pre and post-test groups. A significance threshold of $p < 0.05$ was adopted. All statistical analyses were executed using (IBM SPSS version 26).

Mental health educational block details

This learning course addressed various aspects of the mental health, considering the diversity and complexity of life experiences from historical, cultural, political, developmental, and socioeconomic perspectives. The learning outcomes varied in our course. Knowledge outcomes included identifying factors supporting mental health, understanding illicit drug and psychotropic medication actions, and describing common disorders associated with anxiety and altered perceptions. Cognitive skills involved describing the recovery framework model and emergency management of mental conditions. Interpersonal skills focus on evaluating clinical independence, enhancing leadership, and teamwork. Communication, IT, and numerical skills are geared toward effective communication and report writing. Psychomotor skills involve applying examination techniques and theoretical concepts to mental health in pre-hospital settings. All of these learning outcomes aimed to enable students to be aware in recognizing and dealing with individuals with compromised mental health.

Results

Participants' characteristics

Eighty-three students have participated in our study. The mean age for the included students in the study was 21.33 years with a standard deviation of 0.78, as the included population was EMS students in their fourth year at KSAUHS. More than half of the participants (55.4%) were males. The students were from three different regions in Saudi Arabia. Al Ahsaa region had the highest number of participants, which was 31 (37.3%; Table 1).

Table 1. Participants' characteristics.

Variable	Mean or N	SD or %
Age	21.33	0.78
Gender		
Male	46	55.4
Female	37	44.6
Campus		
Al Ahsaa	31	37.3
Riyadh	30	36.1
Jeddah	22	26.5

Table 2. Participant responses pre- and post-intervention.

5-point Likert scale questions	Response	Pre-test N (%)	Post-test N (%)	p
Paramedics must understand mental illness.	Strongly disagree	0 (0)	2 (2.4)	0.302
	Disagree	1 (1.2)	1 (1.2)	
	Unsure	3 (3.6)	2 (2.4)	
	Agree	23 (27.7)	10 (12)	
	Strongly agree	56 (67.5)	68 (81.9)	
It is important for paramedics to have knowledge of mental diseases	Strongly disagree	1 (1.2)	4 (4.8)	0.332
	Disagree	0 (0)	0 (0)	
	Unsure	2 (2.4)	2 (2.4)	
	Agree	26 (31.3)	11 (13.3)	
	Strongly agree	54 (65.1)	66 (79.5)	
People with severe mental illness do not fully recover	Strongly disagree	5 (6)	19 (22.9)	0.074
	Disagree	13 (15.7)	22 (26.5)	
	Unsure	43 (51.8)	16 (19.3)	
	Agree	20 (24.1)	16 (19.3)	
	Strongly agree	2 (2.4)	10 (12)	
Paramedics should have a sound knowledge of the Mental Health Act	Strongly disagree	2 (2.4)	3 (3.6)	0.103
	Disagree	1 (1.2)	2 (2.4)	
	Unsure	5 (6)	2 (2.4)	
	Agree	40 (48.2)	24 (28.9)	
	Strongly agree	35 (42.2)	52 (62.7)	
I would be comfortable managing a person with a mental health illness	Strongly disagree	3 (3.6)	3 (3.6)	0.001
	Disagree	18 (21.7)	9 (10.8)	
	Unsure	27 (32.5)	19 (22.9)	
	Agree	26 (31.3)	22 (26.5)	
	Strongly agree	9 (10.8)	30 (36.1)	
Talking about suicide encourages people to attempt suicide	Strongly disagree	10 (12)	17 (20.5)	0.063
	Disagree	25 (30.1)	12 (14.5)	
	Unsure	24 (28.9)	10 (12)	
	Agree	21 (25.3)	30 (36.1)	
	Strongly agree	3 (3.6)	14 (16.9)	
People who are agitated and require sedation and restraint should be transported by police.	Strongly disagree	4 (4.8)	20 (24.1)	0.305
	Disagree	15 (18.1)	14 (16.9)	
	Unsure	26 (31.3)	8 (9.6)	
	Agree	20 (24.1)	16 (19.3)	
	Strongly agree	18 (21.7)	25 (30.1)	
People with psychosis are violent and dangerous	Strongly disagree	4 (4.8)	9 (10.8)	0.003
	Disagree	16 (19.3)	33 (39.8)	
	Unsure	19 (22.9)	11 (13.3)	
	Agree	33 (39.8)	22 (26.5)	
	Strongly agree	11 (13.3)	8 (9.6)	
The difference between unipolar mood disorder and bipolar mood disorder is that unipolar is depression only, and bipolar is depression and hypomania (little euphoria)	Strongly disagree	3 (3.6)	6 (7.2)	0.17
	Disagree	4 (4.8)	6 (7.2)	
	Unsure	41 (49.4)	14 (16.9)	
	Agree	27 (32.5)	31 (37.3)	
	Strongly agree	8 (9.6)	26 (31.3)	
People can have a sudden panic attack ONLY in the presence of a real threat.	Strongly disagree	25 (30.1)	38 (45.8)	0.228
	Disagree	23 (27.7)	20 (24.1)	
	Unsure	11 (13.3)	4 (4.8)	
	Agree	20 (24.1)	10 (12)	
	Strongly agree	4 (4.8)	11 (13.3)	
Obsessive-compulsive disorder can negatively affect the normal life of patients.	Strongly disagree	0 (0)	2 (2.4)	<0.0001
	Disagree	1 (1.2)	0 (0)	
	Unsure	14 (16.9)	1 (1.2)	
	Agree	43 (51.8)	16 (19.3)	
	Strongly agree	25 (30.1)	64 (77.1)	
Neglect can cause mental disorders	Strongly disagree	0 (0)	2 (2.4)	<0.0001
	Disagree	1 (1.2)	3 (3.6)	
	Unsure	14 (16.9)	1 (1.2)	
	Agree	43 (51.8)	24 (28.9)	
	Strongly agree	25 (30.1)	53 (63.9)	

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Table 2. Participant responses pre- and post-intervention. (Continues from the previous page)

5-point Likert scale questions	Response	Pre-test N (%)	Post-test N (%)	p
Trauma can cause mental illnesses	Strongly disagree	0 (0)	2 (2.4)	0.001
	Disagree	0 (0)	0 (0)	
	Unsure	9 (10.8)	2 (2.4)	
	Agree	38 (45.8)	20 (24.1)	
	Strongly agree	36 (43.4)	59 (71.1)	
Childhood abuse can cause mental disorders	Strongly disagree	0 (0)	2 (2.4)	0.418
	Disagree	0 (0)	0 (0)	
	Unsure	4 (4.8)	3 (3.6)	
	Agree	29 (34.9)	21 (25.3)	
	Strongly agree	50 (60.2)	57 (68.7)	
Being subjected to racism can cause mental disorders	Strongly disagree	0 (0)	2 (2.4)	0.001
	Disagree	2 (2.4)	0 (0)	
	Unsure	20 (24.1)	12 (14.5)	
	Agree	36 (43.4)	18 (21.7)	
	Strongly agree	25 (30.1)	51 (61.4)	
Subjected to rape can cause mental disorders	Strongly disagree	3 (3.6)	1 (1.2)	<0.0001
	Disagree	4 (4.8)	0 (0)	
	Unsure	23 (27.7)	8 (9.6)	
	Agree	23 (27.7)	16 (19.3)	
	Strongly agree	30 (36.1)	58 (69.9)	

Participants responses pre- and post-educational block

Our assessment part of the questionnaire consisted of 16 questions. Most of the participants responded with strong agreement about the need for paramedics to understand mental illness, and the percentage increased from (67.5%) who strongly agreed to the pre-block education to (81.9%) who strongly agreed to the post-block. Similar results were obtained in the question that asked about the importance of paramedics having knowledge of mental diseases, as the participants that strongly agreed increased from (65.1%) to (79.5%). A significant increase in participants' comfort managing mental health illnesses was observed after the mental health block ($P=0.001$), with strong agreement rising from 10.8% to 36.1%. About the question "People who are agitated and require sedation and restraint should be transported by police", the answers changed from most of the population (31.3%) that they were unsure to the majority strongly agreeing with this question with (30.1%). Another significant difference was found ($P\text{ value}=0.003$) between the pre- and post-block education, mentioning that people with psychosis are violent and dangerous. Many of the opinions shifted from agreeing with (39.8%) to disagree with the same percentage (Table 2).

Regarding the question "People can have sudden panic attacks only in the presence of real threat", the participants' answers of strongly disagree increased from (30.1%) to (45.8%). A significant change in the answers to the question "obsessive-compulsive disorder can negatively affect the normal life of patients" was found as the post-education results had a vast majority strongly agreeing with a percentage of (77.1%) after it was (30.1%) pre-education. The proportion of participants strongly agreeing that neglect can cause mental disorders increased significantly from 30.1% to 63.9% ($P<0.0001$). Both the questions related to racism and trauma had significant differences as $P\text{-value}=0.001$, and both the questions had most students agreeing that these factors can cause mental illness. Finally, the subjection to rape was significantly strongly

agreed that it can cause mental disorders with a percentage of (69.9%) and a $p\text{-value}<0.0001$ (Table 2).

Discussion

In our study involving forth -year EMS students at KSAUHS, the majority of the 83 participants were males from three regions in Saudi Arabia. Our questionnaire showed notable shifts in participants' attitudes. There was an increased acknowledgment of the importance of paramedics understanding mental illness. Notably, there was a significant increase in the comfort level of managing individuals with mental health issues post-mental health block completion. Attitudes towards transporting agitated individuals by police saw a shift towards strong agreement. Significantly, there was a change in perceptions regarding the violence and danger associated with people with psychosis, with a shift from agreement to disagreement. Participants increasingly disagreed with the idea that panic attacks only occur in the presence of a real threat. There was a substantial increase in the acknowledgment of the negative impact of obsessive-compulsive disorder on patients' normal lives. The majority strongly agreed that neglect can cause mental disorders. Both questions related to racism and trauma garnered a majority strong agreement that these factors can cause mental illness. Lastly, a significant majority strongly agreed that exposure to rape can cause mental disorders. The findings clearly indicate a significant improvement in students' knowledge following the completion of the mental health block. As they have a deeper understanding of mental illness, they become more aware of how to deal in the future with such conditions.

A previously published paper emphasized the significance and pertinence of mental health knowledge in the pre-hospital setting, aligning with the students' consensus, as the majority expressed strong agreement on this aspect.¹⁵ Introducing a mental health educational block enhances paramedic students' understanding and

equips them to communicate effectively with patients experiencing mental illnesses. Clear and empathetic communication is essential in gaining trust and facilitating cooperation during the assessment and intervention process.²¹ Knowledge about mental health allows paramedics to tailor their interventions, provide appropriate emotional support, and implement strategies to address the unique challenges posed by mental illnesses.²²

A paramedic's understanding of mental illness directly influences their ability to deliver effective and compassionate care to individuals facing mental health challenges. It not only improves the accuracy of assessments but also contributes to creating a more supportive and empathetic environment during emergency interventions. Ongoing education and training in mental health are essential for enhancing the overall preparedness of paramedics to address the diverse needs of the populations they serve. So, inserting mental illness blocks for the students would have a great future influence, as found in similar previous studies.²⁰ Adding a separate mental block course to the paramedic curriculum can help students better understand and handle mental health issues. More research is needed to find effective ways to make paramedic students feel comfortable dealing with mental health situations, including specific learning goals.

Our study has various limitations. The online questionnaire format could potentially lead students to seek assistance from external sources. The sample size was relatively small, and individual personalities and past experiences might influence responses to certain questions. Additionally, the study was confined to a single institution, limiting the generalizability of results to all paramedic students. We lacked a control group from another institution to present a direct comparison of answers between the two groups.

Conclusions

Our study with forth -year EMS students at KSAUHS revealed positive shifts in attitudes and increased knowledge about mental health after the introduction of a mental health educational block. The results align with previous research emphasizing the importance of mental health knowledge in the pre-hospital setting. The mental health block not only enhanced students' understanding but also holds promise for future paramedics in providing empathetic care to individuals with mental illness. Future research with larger and more diverse samples is needed to strengthen the evidence. Overall, the study underscores the importance of ongoing mental health education in paramedic curricula for better preparedness in addressing diverse population needs.

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