Section: Community Medicine

Original Research Article

EVALUATION OF KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING PHYSICAL AND PSYCHOLOGICAL FIRST AID AMONG UNDERGRADUATE MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: First aid, including both physical and psychological support, is an essential skill for medical students; however, Indian evidence indicates gaps in preparedness, particularly in life-saving skills and psychological first aid training. This study aimed to assess the knowledge, attitude, and practice (KAP) of undergraduate medical students regarding physical and psychological first aid, estimate the proportion who received formal first aid training, and identify the primary sources of first aid knowledge.

Materials and Methods: Cross-sectional study was conducted among second year MBBS students at Government Medical College, Miraj, from August 2025 to October 2025. 191 students participated. Data collected using a structured, pretested, self-administered questionnaire via google forms, analyzed using Microsoft excel and SPSS.

Results: The mean age of participants was 20.95 ± 2.30 years. Physical first aid knowledge was predominantly adequate (73.8%), with only 9.9% demonstrating good knowledge. Psychological first aid knowledge was better with 64.4% showing good knowledge. Majority (83.2%) demonstrated good attitude and good practice (60.2%). Formal first aid training was reported by 44.5% of students. Majority (56.5%) reported primary source of information was medical college. No significant association was found between sex and first aid knowledge.

Conclusion: Although medical students demonstrated a positive attitude and reasonable knowledge, important gaps persist, particularly in critical physical first aid and practical application. Structured, skill-based, and integrated physical and psychological first aid training should be systematically incorporated into the undergraduate medical curriculum.

Keywords: First aid, Psychological first aid, Knowledge attitude practice, Medical students, Emergency preparedness.

INTRODUCTION

First aid is defined as "helping behaviours and initial care provided for an acute illness or injury".[1] It may be provided by a bystander or the victim himself/herself and is not limited to medical personnel. The primary objectives are to alleviate suffering, promote healing, and minimize damage. Prompt and appropriate intervention during the initial hours can improve recovery and reduce deformity when victims are managed professionally at the scene.[2,3]

College campuses expose students to physical injuries arising from sports or accidents and psychological stressors such as academic pressure, peer stress and mental health disorders. Undergraduate students therefore act as both

potential victims and first responders to physical and emotional emergencies among peers.

Traditionally, first aid education has focused on physical emergencies such as bleeding, fractures, burns, and cardiopulmonary resuscitation (CPR). However, Indian studies consistently report that only a small proportion of undergraduate medical students demonstrate good first aid knowledge, with notable deficiencies in managing life-threatening emergencies, including CPR, burns, and seizures.[4-7] Formal first aid training remains limited among medical undergraduate students,[4] despite evidence that structured training improves knowledge and confidence to deal with emergencies.[8,9]

Psychological first aid (PFA), also termed "mental health first aid," "community psychological support" or "stress first aid",[10] aims to reduce distress following crisis situations.[11] Medical education is highly stressful, involving academic pressure, increased responsibilities, reduced parental support, and hostel living.[12–15] Medical students show higher levels of depression and anxiety than non-medical peers,[16] with Indian prevalence estimates approaching or exceeding 50%.[17–19] Psychological first aid is minimally integrated into the undergraduate medical curriculum, and students generally exhibit low to moderate psychological first aid knowledge. Although psychological first aid training improves knowledge, confidence, and self-efficacy, its implementation remains inconsistent.[20-24]

With increasing climate-related emergencies and rising mental health concerns, integrated physical and psychological first aid training is essential. Given the limited Indian evidence assessing preparedness for both domains, the present study aimed to assess the knowledge, attitude, and practice of undergraduate medical students regarding physical and psychological first aid, to estimate the proportion of students received formal first aid training, and to identify the primary sources of first aid knowledge among them.

MATERIALS AND METHODS

Study design: Cross-sectional study

Study setting: Government Medical College, Miraj

Study period: August 2025 to October 2025

Study population: All second-year MBBS students enrolled during the study period were eligible. Students who did not provide informed digital consent, absent during data collection, submitted incomplete questionnaires were excluded from the study.

Sample size and sampling technique: A universal sampling method was employed. Sample size was calculated using the formula:

$n = Z^2 \times P \times (1-P) / e^2$,

where Z = 1.96 at 95% confidence level, P = 13% (prevalence of good first aid knowledge based on Joseph N. et al,[4]) and e = 5% margin of error. The estimated sample size was 173, which was increased to 189 after adding 10% for non-response. A total of 191 students participated in the study.

Study tool and data collection: Data were collected using a structured, pretested, self-administered questionnaire developed in Google Forms circulated via online mode (whatsApp). Digital informed consent was obtained after providing an information sheet explaining the study objectives, participant rights, and confidentiality. Only consenting participants could access the questionnaire. The questionnaire was pretested among 20 interns from the Department of Community Medicine, and necessary modifications were made. Face validity was established by subject experts.

The questionnaire consisted of four sections:

1. Socio-demographic details: age, sex, religion, place of residence (urban/rural), family size, monthly family income, prior first aid training, type of training received (physical, psychological, or both), and source of first aid knowledge (school, medical college, media/workshops, or multiple sources).
2. Knowledge assessment: Physical first aid (36 items): CPR, bleeding, burns, fractures, nosebleeds, heat-related illness, choking, fainting, seizures, snake bite, animal bite, and road traffic accidents. Psychological first aid(PFA)(27 items): principles of PFA, suicidal thought/self-harm, academic pressure, panic attacks, depression, and post-traumatic stress disorder. Each correct response scored 1, and incorrect responses scored 0. Knowledge scores were categorized as good (≥75%), adequate (50–74%), and inadequate (<50%).
3. Attitude assessment: Ten statements rated on a five-point Likert scale (strongly disagree = 1 to strongly agree = 5), with total scores ranging from 10–50, categorized as good (≥75%), moderate (50–74%), and low (<50%).
4. Practice assessment: Nine close-ended questions assessing previous assistance during physical injuries or emotional crises, CPR practice, awareness of emergency numbers, availability of first aid kits, referral to mental health professionals, and updating of first aid knowledge. Practice scores ranged from 0–15 and were classified as satisfactory (≥50%) or scope for improvement (<50%).

Statistical analysis: Data were entered into Microsoft Excel and analyzed using SPSS (free trial version) and statistical web-based tools. Descriptive statistics were expressed as frequencies and proportions. Chi-square tests were applied to assess associations between knowledge levels and selected variables such as sex. A p-value <0.05 was considered statistically significant.

Ethical considerations: Ethical clearance was obtained from the Institutional Ethics Committee of Government Medical College, Miraj. (GMCM/IEC/C/192/2025 Dated: 28/7/2025),

Participation was voluntary, and digital informed consent was obtained from all participants.

RESULTS

The mean age of the 191 participants was 20.95 ± 2.30 years. Most students were aged 20–21 years (62.8%). Males constituted 58.1% of total population. A majority were urban residents (61.8%), belonged to nuclear families (72.2%), were Hindu (91.6%), and were from Class I socioeconomic status (61.3%) (BJ Prasad scale 2025). Detailed sociodemographic characteristics are presented in [Table 1]

Table 1: sociodemographic profile of study participants(n=191)

Variable		Frequency (%)
Age	≤19	29 (15.2)
	20 - 21	120 (62.8)
	22 - 23	33 (17.2)
	24 - 25	6 (3.1)
	≥26	3 (1.5)
Sex	Male	111 (58.1)
	Female	80 (41.9)
Religion	Hindu	175 (91.6)
	Muslim	12 (6.3)
	Christian	2 (1.0)
	Others	2 (1.0)
Area of Residence	Urban	118 (61.8)
	Rural	73(38.2)
Type of Family	Nuclear Family	138 (72.2)
	Joint Family	34 (17.8)
	Three-generation Family	19 (9.9)
Socioeconomic class	Class I	117 (61.3)
	Class II	43 (22.5)
	Class III	19 (9.9)
	Class IV	8 (4.2)
	Class V	4 (2.1)

The mean physical first aid knowledge score was 21.51 ± 4.30. Based on grading, only 19 students (9.9%) demonstrated good knowledge, while the majority had adequate knowledge 141 students (73.8%), and 31 students (16.2%) showed inadequate knowledge.

Table 2: knowledge of physical first aid management in different emergencies (n=191)

Emergency	Good (%)	Adequate (%)	Inadequate (%)
CPR	42 (22)	63 (33.0)	86 (45.0)
Bleeding	23 (12)	80 (41.9)	88 (46.1)
Burns	37 (19.4)	85 (44.5)	69 (36.1)
Fracture	95 (49.7)	64 (33.5)	32 (16.8)
Nosebleeds	4 (2.1)	48 (25.1)	139 (72.8)
Heat-related illness	10 (5.2)	85 (44.5)	96 (50.3)
Choking	78 (40.8)	66 (34.6)	47 (24.6)
Fainting	95 (49.7)	67 (35.1)	29 (15.2)
Seizures	33 (17.3)	67 (35.1)	91 (47.6)
Snake bite	48 (25.1)	69 (36.1)	74 (38.7)
Animal bite	32 (16.8)	89 (46.6)	70 (36.6)
Road traffic accidents	64 (33.5)	85 (44.5)	42 (22.0)

The mean psychological first aid knowledge score was 20.95 ± 4.09. A majority of participants, 123 out of 191 (64.4%), demonstrated good knowledge, while 57 students (29.8%) had adequate knowledge, and only 11 students (5.8%) were categorized as inadequate.

Table 3: knowledge of psychological first aid management in different emergencies (n=191)

Emergency	Good (%)	Adequate (%)	Inadequate (%)
General Psychological First Aid	101 (52.9)	71 (37.2)	19 (9.9)
Suicidal Thoughts / Self-harm	150 (78.5)	27 (14.1)	14 (7.3)
Academic Pressure	167 (87.4)	13 (6.8)	11 (5.8)
Panic Attacks	30 (15.7)	109 (57.1)	52 (27.2)
Depression	96 (50.3)	79 (41.4)	16 (8.4)
Post-Traumatic Stress Disorder (PTSD)	111 (58.1)	61 (31.9)	19 (9.9)

The mean attitude score towards first aid was 40.24 ± 5.88. Majority of students 159 (83.2%), demonstrated a good attitude, while 22 students (11.5%) showed a moderate attitude, and only 10 students (5.2%) displayed a low attitude.

Regarding the practice of first aid, the mean score was 8.26 ± 2.86, 115 students (60.2%) demonstrated good practice, while 76 students (39.8%) were categorized as having a scope for improvement.

Table 4: Distribution of students according to practice regarding first aid (n=191)

Practice	Response	Frequency	Percentage
Knowledge of emergency number (India)	Correct	144	75.4
	Incorrect	47	24.6
Assisted someone in physical injury	Yes	116	60.7
	Observed only	16	8.4
	Never	59	30.9
Helped someone in panic/emotional breakdown	Yes	94	49.2
	Wanted to but didn't know how	19	9.9
	Never	78	40.8
Updated first aid knowledge	Frequently	32	16.8
	Occasionally	91	47.6
	Rarely	62	32.5
	Never	6	3.1
Practiced CPR on a mannequin	Yes	180	94.2
	Observed only	4	2.1
	Never	7	3.7
Interacted with suicidal/self-harming	Supported them	51	26.7
	Talked but didn't know how	11	5.8
	Never	129	67.5
Knowledge of first aid kit availability	Yes	58	30.4
	No	133	69.6
Referred someone to counselor or mental health professional	Yes	46	24.1
	Wanted to but didn't know how	12	6.3
	Never	133	69.6
Willingness to attend first aid training	Definitely	176	92.1
	Maybe	10	5.2
	Unlikely	1	0.5
	No	4	2.1

Out of the total participants, 85 students (44.5%) reported having received formal first aid training, while the remaining 106 students (55.5%) had not undergone any form of training. Among those trained, the majority (66 students, 34.6%) had received training only in physical first aid, whereas 19 students (9.9%) had exposure to both physical and psychological first aid training. The rest (106 students, 55.5%) had not received any formal training in either domain.

The medical college was the primary source of first aid knowledge for most students (56.5%, n=108). School education accounted for 14.1% (n=27), while 10.5% (n=20) reported media or workshops as their main source. Nearly one-fifth of students (18.8%, n=36) reported multiple sources of information, such as a combination of school, college, media, or workshops.

Table 5: Association of First aid knowledge with Sex (n=191)

	Variable	Grading of knowledge				Test	
Knowledge about first aid	**Sex**	**Good**	**Adequate**	**Inadequate**	**Total**	**χ^2**	**P Value**
Physical first aid	Male	12 (10.8)	83 (74)	16 (14)	111	0.7695	0.680
	Female	7 (8)	58 (72)	15 (18)	80		
Psychological first aid	Male	66 (59)	36 (32)	9 (8)	111	4.138	0.126*
	Female	57 (71)	21(26)	2(2)	80		

*Fisher's Exact test (P = 0.125)

DISCUSSION

The present study evaluated the knowledge, attitude, and practice (KAP) related to physical and psychological first aid among second-year medical students and identified important gaps in first aid preparedness despite a generally positive attitude and willingness to learn.

Physical first aid knowledge was largely adequate (73.8%); however, only 9.9% of students demonstrated good knowledge, which is comparable to findings by Joseph et al. from Mangalore, where good knowledge was observed in only 13.8% of students while the majority had moderate knowledge (68%).[4] Similar patterns of predominantly moderate knowledge have been reported from Maharashtra and Bangalore by Kawale et al. and Gore et al. respectively.[5,6] In contrast, a study from Saudi Arabia reported higher levels of good first aid knowledge among both medical (61.2%) and non-medical (53.2%) students.[27] Marked deficiencies were noted in the management of nosebleeds (72.8% inadequate) and heat-related illnesses (50.3% inadequate), consistent with observations by Joseph et al., who reported low good-knowledge levels for nosebleeds (13.8%) and heat related illness (11.8%).[4] However, a study from Nepal by Shiva Bhushan et al. reported better performance, with 62.38% of students demonstrating above-average knowledge of epistaxis management.[26] Persistent gaps in critical life-saving skills such as CPR, bleeding control, and seizure management observed

in the present study align with earlier Indian studies highlighting inadequate emergency response competencies among medical undergraduates.[4–7]

In contrast, psychological first aid (PFA) knowledge was comparatively better in the present study, with 64.4% of students demonstrating good knowledge. Higher awareness was observed in domains related to academic pressure and suicidal thoughts/self-harm, suggesting growing sensitivity to mental health issues among medical students, whereas relatively lower knowledge regarding panic attacks indicates uneven understanding of psychological emergencies. Recharla Chenchu Karthik et al. reported a substantial burden of psychological morbidity among medical students in Kancheepuram, with prevalence rates of depression (48.33%), anxiety (60.56%), and stress (27.22%).[17] Similarly, a study from Gujarat by Nimisha D. Desai et al. documented depression in 14% and suicidal ideation in 9% of medical students, with nearly half identifying academic stress as a major life stressor, underscoring significant psychological vulnerability in this population.[28] Systematic and narrative reviews further indicate that although awareness of mental health issues is increasing, structured training in psychological first aid remains limited and inconsistently implemented within undergraduate medical curricula.[10,11] Evidence suggests that Mental Health First Aid (MHFA) is a promising strategy to enhance mental health literacy, confidence, and skills, while also reducing stigma among healthcare professional students.[21,23–25]

Attitude towards first aid was highly positive in the present study, with over 80% of students demonstrating a good attitude. This finding is consistent with earlier Indian studies, which have reported strong willingness among medical students to learn and participate in first aid activities despite existing gaps in knowledge and skills.[4–6] However, nearly 40% of students showed a "scope for improvement" in practice, indicating a clear action gap. This suggests that although students are willing to help, limitations in confidence, skill reinforcement, or available support systems may hinder effective intervention. While a majority had assisted in physical injuries and practiced CPR during training, engagement in psychological support and referral behaviors remained limited.

In the present study, 44.5% of students reported having received prior formal first aid training, although only 9.9% had exposure to integrated training covering both physical and psychological first aid. In contrast, Joseph N. et al,[4] reported that only 12% of medical students had received any form of first aid training. These findings support observations by Sen and Tamilselvi,[22] that first aid education in undergraduate settings remains fragmented and insufficiently structured. Evidence suggests that theoretical knowledge alone does not translate into confident first responder behaviour without repeated, hands-on, and skill-based reinforcement.[6,22] The medical college emerged as the primary source of first aid knowledge for more than half of the students, underscoring the responsibility of institutions to provide structured, longitudinal training rather than isolated workshops. Furthermore, no significant association was observed between sex and either physical or psychological first aid knowledge, a finding consistent with Joseph N. et al,[4] who also reported no gender-based differences in physical first aid knowledge.

CONCLUSION

The present study offers a comprehensive assessment of the knowledge, attitude, and practice related to both physical and psychological first aid among undergraduate medical students, an area with limited evidence in the Indian context. However, the cross-sectional design and conduct at a single institution limit causal interpretation and generalizability, and restriction to second-year MBBS students constrains comparisons across different stages of medical training. Despite these limitations, the findings underscore the urgent need to integrate structured, skill-based, and regularly reinforced training in both physical and psychological first aid within the undergraduate medical curriculum to strengthen emergency preparedness and promote comprehensive, patient-centred care.

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