

Prevalence of Adjustment Disorder and Its Associated Factors among First Year Medical Students of the Faculty of Medicine, University of Ruhuna, Sri Lanka

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Abstract: Adjustment disorder is a stress-related condition that develops following identifiable stressors and is characterised by emotional and behavioural symptoms that impair functioning. First-year medical undergraduates experience multiple academic, social, and personal life changes that may predispose them to psychological distress. This study aimed to determine the prevalence of adjustment disorder and identify its associated factors among first-year medical students at the Faculty of Medicine, University of Ruhuna. A cross-sectional analytical study was conducted among 256 first-year medical undergraduates. Data were collected using a pre-tested self-administered questionnaire within the first three months of university entrance. Adjustment Disorder New Module-20 (ADNM-20) was used to assess the presence of adjustment disorder. ADNM-20 scores were categorised as low risk (<47.5) or high risk (≥47.5). Chi-square test and multiple logistic regression were used to identify independent predictors of adjustment disorder at a 0.05 significance level. The mean age of the participants was 20.3 years, and 66.4% were females. A high prevalence of adjustment disorder was observed (62.1%). Avoidance (mean = 2.70) and depressed mood (mean = 2.69) were the most prominent symptoms. Several factors showed significant associations with the presence of adjustment disorder in bivariate analysis, including female gender, non-users of alcohol, Sinhala/Tamil medium education, and important changes in health status, relationships, and personal life. Multivariate analysis identified two independent predictors: female gender (OR = 3.09, 95% CI: 1.71–5.59, $p < 0.001$) and experiencing personal life changes (OR = 2.11, 95% CI: 1.16–3.85, $p = 0.015$). Adjustment disorder is highly prevalent among first-year medical undergraduates, indicating substantial psychological vulnerability during the transition to medical school. Female students and those experiencing significant personal life changes are at a higher risk. Findings highlight the need for early screening, strengthened student mental health services, structured orientation programs, and targeted psycho-educational interventions to support student well-being.

Keywords: Adjustment disorder, Medical undergraduates, Associated factors

INTRODUCTION

Adjustment disorder is a stress-related condition characterised by emotional or behavioural symptoms that develop in response to an identifiable life stressor and interfere with daily functioning (1). Classified under reaction to severe stress and adjustment disorders in the International Classification of Diseases -10th version (ICD-10), it commonly presents with depressed mood, anxiety, worry, difficulty in coping, and impaired performance (1). The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) defines adjustment disorder as a maladaptive response occurring within three months of exposure to a stressor (2).

The Adjustment Disorder New Module-20 (ADNM-20) assessment tool further identifies low, moderate, and high symptom severity groups (3-5). Although individual vulnerability influences symptom severity, the disorder is understood to occur only following a significant stressor such as bereavement, relocation, interpersonal conflict, or major developmental transitions. The transition from school to university is one such transition known to increase psychological vulnerability (6).

For Sri Lankan medical students, this process is particularly demanding due to a combination of academic and psychosocial stressors. A major challenge is the abrupt shift in the language of instruction. While most students complete schooling in Sinhala

or Tamil, medical education is conducted primarily in English. This language gap creates difficulties in understanding academic material, engaging in discussions, and performing well in examinations, contributing to high stress levels (7,8). Relocation also poses a significant burden of adjustment. Many students must leave home and live in hostels or boarding houses, leading to reduced familial support, loneliness, and social isolation, factors strongly associated with emotional distress (9). Additionally, the shift from a highly structured, teacher-centred school environment to the self-directed learning model required in medical school can be overwhelming, increasing academic pressure and reducing perceived coping ability (10).

There are a few studies available in the literature on the topic of interest. In a study of first-year medical students at King Saud University in Saudi Arabia, 44.5% were classified as high-risk for adjustment disorder using ADN-20 (cut-off ≥ 47.5), indicating moderate-to-high levels of adjustment difficulties in this group (11). A similar study in Madina, Saudi Arabia, reported that the overall prevalence of adjustment disorder symptoms was 47.3% among first- and second-year medical students (12). In a nationwide survey of first-year MBBS students in India, 67% screened positive for adjustment disorder using the ADN-20 (13). A cross-sectional study at Arabian Gulf University in Bahrain found 34.1% of medical students had potential adjustment disorder (14).

Studies show Sri Lankan medical students experience high psychological distress, with nearly 70% affected during recent economic challenges (15,16). Despite this, evidence on adjustment disorder specifically remains limited in the local context. Understanding its prevalence and associated factors is essential to guide targeted mental health interventions. With this background, this study was conducted to assess the prevalence of adjustment disorder and its related factors among first-year medical students of the Faculty of Medicine, University of Ruhuna.

The findings of this study will provide evidence on the magnitude of adjustment disorder and its associated factors among first-year medical students, highlighting

mental health needs during the transition to medical education. This evidence can inform university and national higher education policies to prioritize student mental health, strengthen counselling services, and allocate resources for early screening and preventive interventions. At the institutional level, the results can guide the development of targeted support programs, stress management training, peer support mechanisms, and academic mentoring. Overall, the study will support evidence-based strategies to improve student well-being, academic performance, and retention in medical faculties.

MATERIALS AND METHODS

Study Design and Setting. A cross-sectional study with an analytical component was conducted among first-year medical undergraduates of the Faculty of Medicine, University of Ruhuna. The study was carried out within the faculty premises, where academic activities for the new batch had commenced in early 2025. All procedures were performed in accordance with institutional guidelines and without disruption to routine academic work.

Study Sample. The study population consisted of all first-year medical students of the new batch. Since the total population was small, all 300 students were invited to participate. The sample size had been calculated using the standard formula for estimating proportions in cross-sectional studies, considering an expected prevalence of adjustment disorder of 42% (17) and a precision of 6%. The minimum required sample was 260, which increased to 289 after adding 10% for non-response. As the total batch size was 300, a census method was adopted, and therefore, no inclusion or exclusion criteria were applied.

Data Collection tool. Data were collected using a self-administered, pre-tested questionnaire in English within the first three months of university entrance. The instrument consisted of several components: socio-demographic and educational characteristics, potential stressors relevant to first-year medical students, and the Adjustment Disorder New Module-20 (ADNM-20) (18). Content validation was conducted through expert judgment by specialists in the research methodology,

psychology and behavioural science, and the questionnaire was pre-tested on a group of final-year medical students to assess clarity and feasibility.

Data Collection. The study was carried out without any disturbances to the academic activities of the student. Ethical clearance was obtained from the Ethical Review Committee, Faculty of Medicine, University of Ruhuna (2025/P/025). Permission was obtained from the Dean, Faculty of Medicine, University of Ruhuna, before the data collection. Data collection was conducted after obtaining informed written consent from the participants. As the questionnaire was provided in English only, assistance was provided during data collection whenever required for clarification.

Adjustment Disorder New Module-20. The ADNM-20 is a self-report measure consisting of two parts: a stressor list and an item list (18). The stressor list captures a broad range of acute and chronic life events of the past two years. The item list measures the symptoms in response to the most distressing event(s). Participants indicate on a 4-point Likert scale, ranging from 1 (never) to 4 (often), how often they have experienced different symptoms of an adjustment disorder during the past two weeks. The ADNM-20 consists of six subscales: preoccupation (4 items), failure to adapt (4 items), avoidance (4 items), depressive mood (3 items), anxiety (2 items), and impulse disturbance (3 items). Based on the total score, it can be categorized into low risk (<47.5) and high risk (≥47.5) categories for adjustment disorder, according to the original scoring guidelines. Psychometric evaluations show that the ADNM-20 has good internal consistency (e.g., Cronbach's $\alpha > 0.90$) and meaningful factor structures consistent with theoretical models of adjustment disorder (19). Studies also support construct validity through correlations with related measures (e.g., anxiety, depression) and factorial validity in diverse samples (20). Cross-cultural validation efforts have translated and tested the ADNM-20 in several languages and populations, including Japanese (19), Chinese (21), and Spanish versions (20), demonstrating satisfactory reliability and validity across cultural contexts.

Data Analysis. Data were entered into a database developed in SPSS (25th version)

and were analysed using appropriate statistical methods. Descriptive statistics were used to summarise the baseline characteristics, with means and standard deviations for continuous variables and frequencies with percentages for categorical variables. ADNM-20 scores were calculated and categorised into low risk (<47.5) and high risk (≥47.5) for adjustment disorder according to the original scoring guidelines. The chi-square test was used to identify the associated factors for adjustment disorder at the initial step. Bivariate analysis was followed by multiple logistic regression to identify factors independently associated with the presence of high-risk adjustment disorder. The factors that showed p-value less than 0.25 in the bivariate analysis were selected as independent variables to be applied in the multiple logistic regression analysis for controlling the confounding effect. A significance level of 0.05 was used for all statistical tests.

RESULTS

The sample consisted of 256 medical undergraduates (response rate 85.3%), of whom 66.4% were female. The majority were Sinhala (89.8%), Buddhist (87.1%), and lived in semi-urban areas (63.7%) (Table 1). Most students had a monthly family income below LKR 100,000 (58.2%), and alcohol (3.9%) and tobacco use (1.6%) were low. The median distance from home to faculty was 121.5 km. Most students reported above average English proficiency (71.1%). A majority lived in boarding places (56.3%), shared rooms (72.3%), and studied with friends from the same school (83.6%).

Factors contributing to adjustment disorder among medical undergraduates.

Academic changes were experienced by 100% of the students. Other common stressors included changes in living situation (79.3%), relationships (71.1%), financial status (66.0%), and physical health (59.4%). Changes in personal life were experienced by 39.8%, while mental health problems were experienced by 7.0% (Table 2). Detailed information on the experience of important changes in medical undergraduates' lives is described below.

Table 1: Socio-demographic characteristics of the sample (N=256)

Socio-demographic factors	Number (%)
Gender	
Male	86 (33.6)
Female	170 (66.4)
Ethnicity	
Sinhala	230 (89.8)
Tamil	5 (2.0)
Muslim	21 (8.2)
Religion	
Buddhist	223 (87.1)
Hindu	8 (3.1)
Islam	18 (7.0)
Catholic	7 (2.7)
Area of Residence	
Urban	64 (25.0)
Semi-urban	163 (63.7)
Rural	29 (11.3)
Monthly family Income in LKR [median (IQR) =72500 (50000-150000)]	
Satisfactory (100000 and above)	107 (41.8)
Unsatisfactory (below 100000)	149 (58.2)
Substance use behaviour	
Alcohol	10 (3.9)
Tobacco	4 (1.6)
Distance from home in km [median (IQR) =121.5 (79.3-199.8)]	
Less than 20km	28 (10.9)
20km and above	228 (89.1)
English language proficiency	
Above average	182 (71.1)
Average	59 (23.0)
Below average	15 (5.9)
Only child of the family	24 (9.4)
Living status in undergraduate life	
Home	29 (11.3)
Hostel	83 (32.4)
Boarding place	144 (56.3)
Room shared with a faculty roommate	185 (72.3)
Learning with friends from the same school at the faculty	214 (83.6)

Table 2: Factors contributing to adjustment disorder among medical undergraduates (N=256)

Changes experienced	Number (%)
In health status	152(59.4)
In academic activities	256(100.0)
In a living situation	229(89.4)
In relationships	182(71.1)
In personal life	102(39.8)
In financial status	169(66.0)

A substantial proportion of participants experienced notable changes in their physical or mental health during the study period. More than half (59.4%) experienced an important change in physical health status, while smaller proportions experienced specific health-related events such as mild acute illness and mild injuries (9.8%) and severe acute illness or severe injuries (2.3%). Illness lasting more than a week was noted by 13.3%, and chronic medical or mental illnesses were uncommon (2.3% and 0.4%, respectively). Unexpected hospital admissions (2.3%) and surgeries (3.1%) were also infrequent. However, lifestyle-related changes were more prominent, with 33.2% reporting major changes in eating habits, 28.5% reporting major changes in sleeping habits, and 28.5% experiencing weight loss, while 6.6% experienced weight gain. Additionally, 25.8% noted a change in mental health status, and 17.2% experienced a change in physical activity level. A minority of the students (7.0%) were diagnosed with depression (5.8%) and bipolar affective disorder (1.1%).

Regarding changes in academic life, 92.9% experienced a change in study medium, while 89.1% experienced an increase in workload. Difficulty in completing academic tasks was experienced by 76.6%, while a change in study hours was experienced by 60.9%. Change in responsibilities in undergraduate life and difficulties in university life were also experienced by

significant proportions (56.6% and 25.8%, respectively).

Regarding changes in living situation, 89.4% experienced moving out of home, while 9.4% had issues with roommates, 14.1% were concerned about facilities in hostel/boarding place, and 7.0% unhappy about not receiving hostels. Homesickness (69.6%), serious illness of a family member (4.3%), conflicts between parents (4.3%), and recent death of a family member (2.0%) were identified as stressful experiences in relationships among medical undergraduates. Starting a love affair (14.5%), breakup of a relationship (4.7%), conflicts in a relationship (7.8%), and social isolation (14.8%) were identified as significant changes in personal life. The following changes in their financial status were identified by the participants: an increase in personal expenses (59.8%), loss of income source (14.1%), and family facing financial difficulties (18.4%).

Prevalence of adjustment disorder. The mean total ADN-20 score was 51.03 (SD = 10.69). Among symptom categories, avoidance (mean = 2.70) and depressed mood (mean = 2.69) were the highest-scoring symptoms, followed by impulse disturbance (2.61). Core symptoms showed moderate means: preoccupation (2.50) and failure to adapt (2.27). Overall mean per item was 2.55 (SD = 0.53) (Table 3).

Table 3: Mean scores for items in Adjustment Disorder New Module-20

Symptom category	Symptom	Mean (SD) per item
Core symptoms	Preoccupations with the stressor (4 items)	2.50 (0.66)
	Failure to adapt (4 items)	2.27 (0.70)
Accessory symptoms	Avoidance (4 items)	2.70 (0.64)
	Depressed mood (3 items)	2.69 (0.58)
	Anxiety (2 items)	2.43 (0.72)
	Impulse disturbance (3 items)	2.61 (0.72)
Total scale	20 items	2.55 (0.53)

Out of the total sample, 159 students had a total score of 47.5 or above for ADN-20, indicating high risk for adjustment disorder. They were considered to have adjustment disorder in calculating the prevalence. A high prevalence (62.1%) of adjustment disorder

was detected among medical undergraduates.

Associated factors for adjustment disorders. Analysis of factors associated with adjustment disorder showed several

significant associations (Table 4). Female students had a significantly higher prevalence of adjustment disorder compared to males (70.6% vs. 45.3%, $p < 0.001$). Non-users of alcohol demonstrated a higher prevalence than alcohol users (63.4% vs. 30.0%, $p = 0.033$). Students who completed their GCE A/L in Sinhala or Tamil medium were more likely to have adjustment disorder compared to English medium students (63.9% vs. 38.9%, $p = 0.035$). Experiencing important changes in physical health was significantly associated with adjustment disorder (67.1% vs. 54.8%, $p = 0.046$), as were changes in interpersonal relationships (71.6% vs. 56.8%, $p = 0.011$). Other variables, including ethnicity, religion, residence, financial status, English proficiency, living arrangements, distance to faculty, and changes in academic activities or personal life, did not show statistically significant associations with adjustment disorder.

Multivariate logistic regression identified two factors that remained significantly associated with adjustment disorder after controlling for potential confounders. Female gender was a strong independent predictor, with females showing more than three times higher odds of having adjustment disorder compared to males (OR = 3.09, 95% CI: 1.71–5.59, $p < 0.001$). Additionally, experiencing significant changes in personal life was associated with a twofold increase in odds of adjustment disorder (OR = 2.11, 95% CI: 1.16–3.85, $p = 0.015$). Other variables, including diagnosis of mental health illnesses, alcohol use, A/L medium of study, living arrangements, changes in physical health, and changes in financial status, did not retain statistical significance in the adjusted model, despite some showing elevated odds ratios (Table 5).

Table 4: Associated factors for adjustment disorder among medical undergraduates (N=256) (ADNM-20) (N=256) undergraduates (N=256)

Factors	Adjustment disorder		Total N (%)	Chi-square value (p-value)
	Yes n (%)	No n (%)		
Gender				
Male	39 (45.3)	47 (54.7)	86 (100.0)	15.46
Female	120 (70.6)	50 (29.4)	170 (100.0)	(<0.001) *
Ethnicity				
Sinhala	141 (61.3)	89 (38.7)	230 (100.0)	0.62
Muslim/ Tamil	18 (69.2)	8 (30.8)	26 (100.0)	(0.430)
Religion				
Buddhist	137 (61.4)	86 (38.6)	223 (100.0)	0.33
Hindu/Islam/Catholic	22 (66.7)	11 (33.3)	33 (100.0)	(0.563)
Area of residence				
Semi-urban/rural	119 (62.0)	73 (38.0)	192 (100.0)	0.01
Urban	40 (62.5)	24 (37.5)	64 (100.0)	(0.941)
Financial Status of the family (Monthly)				
Satisfactory (100000LKR and above)	60 (56.1)	47 (43.9)	107 (100.0)	2.84
Unsatisfactory	99 (66.4)	50 (33.6)	149 (100.0)	(0.092)
Single child of the family				
Yes	15 (62.5)	9 (37.5)	24 (100.0)	0.01
No	144 (62.1)	88 (37.9)	232 (100.0)	(0.967)
Distance from the medical faculty to home				
Less than 20 km	19 (67.9)	9 (32.1)	28 (100.0)	0.44
20 km and above	140 (61.4)	88 (38.6)	228 (100.0)	(0.506)
Alcohol use				
Yes	3(30.0)	7(70.0)	10(100.0)	4.55
No	156(63.4)	90(36.6)	246(100.0)	(0.033) *
GCE A/L learning medium				
English	7(38.9)	11(61.1)	18(100.0)	4.43
Sinhala/Tamil	152(63.9)	86(36.1)	238(100.0)	(0.035) *

Factor	Adjustment disorder		Total N (%)	Chi-square value (p-value)
	Yes n (%)	No n (%)		
English language fluency				
Average and above	156(62.7)	90(37.3)	241(100.0)	0.52
Below average	8(53.3)	7(46.7)	15(100.0)	(0.470)
Living status in undergraduate life				
Home	22(75.9)	7(24.1)	29(100.0)	3.40
Hostel	47(56.6)	36(43.4)	83(100.0)	(0.183)
Boarding place	90(62.5)	54(37.5)	144(100.0)	
Sharing a room with a roommate				
Yes	112(60.5)	73(39.5)	185(100.0)	0.69
No	47(66.2)	24(33.8)	71(100.0)	(0.404)
Having friends from the same school at the faculty				
Yes	135(63.1)	79(36.9)	214(100.0)	0.53
No	24(57.1)	18(42.9)	42(100.0)	(0.468)
Experienced an important change in health status				
Yes	102(67.1)	50(32.9)	152(100.0)	3.96
No	57(54.8)	47(45.2)	104(100.0)	(0.046)*
Experienced an important change in academic activities				
Yes	159(62.1)	97(37.9)	256(100.0)	Not applicable
No	0(0.0)	0(0.0)	0(0.0)	Not applicable
Experienced an important change in the living situation				
Yes	144(63.1)	85(36.9)	229(100.0)	0.55
No	15(58.5)	12(41.5)	27(100.0)	(0.457)
Experienced an important change in relationships				
Yes	117(64.3)	65(35.7)	182(100.0)	1.26
No	42(56.8)	32(43.2)	74(100.0)	(0.260)
Experienced an important change in personal life				
Yes	73(71.6)	29(28.4)	102(100.0)	6.44
No	86(56.8)	68(44.2)	154(100.0)	(0.011)*
Experienced an important change in financial status				
Yes	108(63.9)	61(36.1)	169(100.0)	0.68
No	51(58.6)	36(41.4)	87(100.0)	(0.409)
Diagnosed with a mental health illness				
Yes	15(83.3)	3(16.7)	18(100.0)	3.70
No	144(60.5)	94(39.5)	238(100.0)	(0.054)

*Statistically significant at 0.05 significance level

Table 5: Associated factors for adjustment disorder among medical undergraduates:
 Multivariate analysis(N=256) undergraduates (N=256) (ADNM-20) (N=256) undergraduates

Factor	Odd Ratio	95% Confidence interval		Significance
		Lower	Upper	
Female gender	3.088	1.707	5.586	<0.001*
Unsatisfactory financial status	1.498	0.846	2.655	0.166
Not using alcohol	3.324	0.678	16.304	0.139
Sinhala/Tamil medium of study at GCE A/L	2.358	0.799	6.960	0.120
Living in a hostel compared to living at home	0.424	0.151	1.190	0.103
Living in a boarding place compared to living at home	1.449	0.785	2.674	0.236
Experience of an important change in health status	1.395	0.792	2.458	0.249
Experience of an important change in personal life	2.109	1.157	3.847	0.015*
Having a diagnosis of a mental health illness	3.664	0.908	14.787	0.068

*Statistically significant at 0.05 significance level

DISCUSSION

This study assessed the prevalence of adjustment disorder and its associated factors among first-year medical undergraduates of the Faculty of Medicine, University of Ruhuna. The findings indicate a high prevalence of adjustment disorder (62.1%), reflecting a substantial psychological burden during the transition into medical school. This rate is higher than the prevalence rates experienced in comparable international studies, where rates among university students range between 20–70% (11-14,22,23). The elevated prevalence in this setting may reflect the combined influence of academic, linguistic, and psychosocial stressors unique to Sri Lankan medical education.

Academic-related stressors were universally experienced (100%) in this sample. The transition from school to a demanding medical curriculum, coupled with increased workload and self-directed learning expectations, is known to heighten stress and reduce perceived coping ability (24,25). The prominence of avoidance, depressed mood, and impulse disturbance in the symptom profile suggests that early-stage maladaptive coping mechanisms may be developing among students. The study also identified female gender as a strong independent predictor of adjustment disorder (OR = 3.09). This aligns with extensive literature showing higher stress sensitivity, increased emotional responsivity, and greater internalising tendencies among female students (22,26). Additionally, experiencing significant changes in personal life independently doubled the risk of adjustment disorder (OR = 2.11), consistent with adjustment disorder models that emphasise the interaction between life stressors and individual vulnerability (27). Personal stressors such as relationship conflicts, social isolation, or major lifestyle changes may exacerbate an already challenging academic transition.

Several other factors, including financial difficulties, physical health changes, and A/L medium, showed associations in bivariate analysis but did not retain significance in multivariate models. This suggests that their effects may be mediated by broader psychosocial processes or overshadowed by

more influential variables like gender and personal life stressors. The widespread experience of relocating, homesickness, and changes in living environments further highlights the multifaceted nature of stress exposure among new entrant undergraduates (23). Overall, the findings demonstrate a substantial mental health burden during the crucial transition to medical school and highlight the importance of timely support mechanisms. Given that adjustment disorder is responsive to early interventions, these results underscore the need for proactive institutional strategies to mitigate distress and promote psychological well-being.

Several limitations must be acknowledged in this study. The cross-sectional design limits causal inference, and longitudinal designs would better elucidate symptom progression. Data were collected using self-administered questionnaires, which may be susceptible to reporting biases. Although English proficiency was self-rated as mostly above average, the possibility of misinterpretation of items remains. The study's single-centre nature may limit generalizability to other Sri Lankan faculties. ADN-20 is a screening tool, and the prevalence was calculated based on the findings of the screening. Although the original ADN-20 cut-off score of 47.5 was used to categorise low- and high-risk adjustment disorder, evidence suggests that optimal cut-off values may vary across populations, cultures, and settings. Accordingly, the use of this cut-off without local validation may limit the accuracy of risk classification in this study and should be acknowledged as a study limitation. Further, the use of an English medium questionnaire for data collection was considered as a language-related limitation.

In conclusion, the study found a high prevalence of adjustment disorder (62.1%) among first-year medical students, with female gender and significant changes in personal life emerging as strong independent predictors. Academic, personal, and living arrangement-related stressors were widely experienced, reflecting the complex adjustment challenges students face during medical school transition. These findings highlight the urgent need for structured mental health support systems within the

university environment. Based on study findings, it is recommended that the faculty implement structured orientation programs, strengthen mental health services with routine screening and accessible counselling, and develop peer-support mechanisms to foster social connectedness. Targeted interventions for female students and those experiencing personal life changes should be prioritised. Additional academic support, particularly language-transition assistance for students shifting from Sinhala/Tamil to English medium, may help reduce early academic stress. Multi-centre longitudinal research is encouraged to enhance generalizability and to monitor mental health trajectories throughout medical training.

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