RESEARCH PAPER

Effectiveness of Group Counselling on Stress, Depression and Anxiety Among Medical Students: A Pre-Post Intervention Study

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ABSTRACT

Aim: To evaluate the effectiveness of a structured group counselling programme in reducing depression, anxiety, and stress among medical students.

Objective: To assess pre- and post-intervention levels of depression, anxiety, and stress using the DASS-42 among medical students enrolled at Santosh Deemed to be University, Ghaziabad, UP.

Design: Data were collected from a total of 143 participants (60 male, 83 female). The intervention was based on a psychoeducation-supportive group counselling model comprising six weekly sessions. The quasi-experimental study used a single-group pretest/posttest design. Participants completed the Depression Anxiety Stress Scale-42 (DASS-42) & Perceived Stress Scale(PSS-10) before and after the intervention. Data were analysed using Wilcoxon signed rank test.

Results: The results indicated the existence of meaningful differences in depression ($Z = 7.87$, $p < 0.001$), anxiety ($Z = 9.34$, $p < 0.001$), and stress ($Z = 8.82$, $p < 0.001$) from pre-treatment to post-treatment. Female students reported significantly higher baseline anxiety and stress than male students.

Conclusion: The programme was effective in significantly decreasing participants' depression, anxiety, and stress. These are encouraging results demonstrating an effective form of the intervention in a medical student population.

Keywords: group counselling; depression; anxiety; stress; medical students; DASS-42, PSS-10; psychoeducation; pre-post design

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INTRODUCTION

Stress appears to be a particular common problem in medical students (1, 2). The high demands of the medical curriculum (3, 4), coping with the stresses of academic rigours, competitive examinations, early clinical exposure, financial pressures and interpersonal relationship dynamics all have an impact on the lives of students. The literature indicates that the rates of and the impact of mental disorders on medical campuses are increasing (5, 6). However, over the last decade, counselling centers within medical facilities reported a change in the presenting concerns of students, from less prevalent developmental issues to more prevalent psychological problems, such as depression, anxiety and burn-out (7, 8).

A systematic review and meta-analysis of 195 studies revealed a pooled prevalence of depression of 27.2% in medical students worldwide (5); and Quek et al. (9) reported a prevalence of 33.8% for anxiety in medical students. Alarming rates of psychological morbidity (depression ranging from 20% to 46%, anxiety ranging from 25% to 55%) have also been reported in India in medical undergraduates (10, 11). The untreated psychological problems may have a negative impact on academic performance, retention, and graduation rates; they may lead to interruption of studies, dropout, and other serious consequences such as suicidal behaviour and substance use (6, 12).

Counselling services are nowadays a part of academic duties of medical institutions. Group counselling, in particular, offers services of psychological support in a variety of typical problems faced by

Medical students, including stress management, emotional disorders and interpersonal issues. The interventions are aimed at the overall development of the student and

enhancement of the quality of life within the school and in the community. Psychological issues, when treated appropriately, can allow a student to successfully finish his/her course of study, secure a successful career and develop rewarding relationships with important people in his/her life (12, 13).

Given this background, the purpose of the present study is to assess the efficacy of group psychological counselling to alleviate symptoms of depression, anxiety and stress in medical students. The intervention is a psychoeducation-supportive group counselling which includes a psychoeducational information delivery, a cognitive-behavioural component, a relaxation component and a supportive group work component to improve participants coping skills and to address those difficulties they may be having with distress (14). Group treatment seems to have a favourable outcome when compared to individual treatment, being equally effective, if not more effective, than individual treatment (15). The success of structured group interventions to address diverse clinical symptoms such as anxiety, depression and psychological challenges has been confirmed by a meta-analytic review (16).

METHOD

3.1 Design

A pre-post intervention design was employed to evaluate the effectiveness of a structured group counselling programme among MBBS first year students. Participants were assessed at two time points: prior to the commencement of the intervention (Time 1 / Pre-intervention) and upon completion of the full intervention cycle (Time 2 / Post-intervention).

3.2 Ethical Considerations and Informed Consent

Ethical approval for this study was obtained from the Institutional Ethics Committee (IEC) prior to the commencement of any data collection, participant recruitment, or intervention delivery. The study protocol was designed and conducted in full accordance with the ethical principles outlined in the Declaration of Helsinki (World Medical Association, 2013) and applicable national guidelines for biomedical and health research involving human participants.

Written informed consent was obtained from every participant prior to enrolment in the study. All MBBS first year students were fully informed of the study's aims and objectives, the nature and duration of the intervention and assessments, the voluntary nature of their participation, their right to withdraw from the study at any point without prejudice or consequence to their academic standing, and the strict confidentiality of all personal data collected. Data were coded using unique participant identification numbers to ensure anonymity throughout all phases of data collection, storage, analysis, and reporting. No personally identifiable information was used in any analysis or publication material.

3.3 Participants

Data were collected from a total of 143 medical students enrolled at a medical institution in India. Table 1 represents the sociodemographic characteristics of the participants. In particular, 60 male (42.0%) and 83 female (58.0%) students participated in the group counselling programme. The mean age was 19.61 years (SD = 1.52; range 18–29). The participants were enrolled in the first year MBBS students. All participants were informed of the nature and purpose of the study and provided written informed consent prior to baseline assessment.

Inclusion criteria: (a) Enrolment in the MBBS first year at the study institution, (b) voluntary written informed consent, and (c) absence of a current severe psychiatric diagnosis requiring pharmacological management.

Exclusion criteria: Students currently receiving individual psychotherapy or psychotropic medication during the intervention period were excluded to avoid confounding of outcome measures.

Instruments

Depression Anxiety Stress Scale-42 (DASS-42): The DASS-42 is a validated 42-item self-report instrument comprising three 14-item subscales measuring depression, anxiety, and stress over the preceding week (Lovibond & Lovibond, 1995). Each item is rated on a four-point Likert scale (0 = did not apply to me at all; 3 = applied to me very much or most of the time). Subscale scores are derived by summing item responses, with higher scores reflecting greater psychological distress. Severity classifications are established at the subscale level (Normal, Mild, Moderate, Severe, Extremely Severe). The DASS-42 demonstrates excellent internal consistency (Cronbach's $\alpha = 0.91–0.97$ across subscales) and good convergent and discriminant validity.

Perceived Stress Scale-10 (PSS-10): The PSS-10 is a validated 10-item self-report measure assessing the degree to which life situations are appraised as stressful over the past month (Cohen et al., 1983). Items are rated on a five-

point Likert scale (0 = never; 4 = very often). Total scores range from 0 to 40, with higher scores indicating greater perceived stress. Established cut-offs categorise stress as low (0–13), moderate (14–26), or high (27–40). The PSS-10 has demonstrated good reliability (Cronbach's α = 0.78–0.91) *and construct validity across diverse populations.*

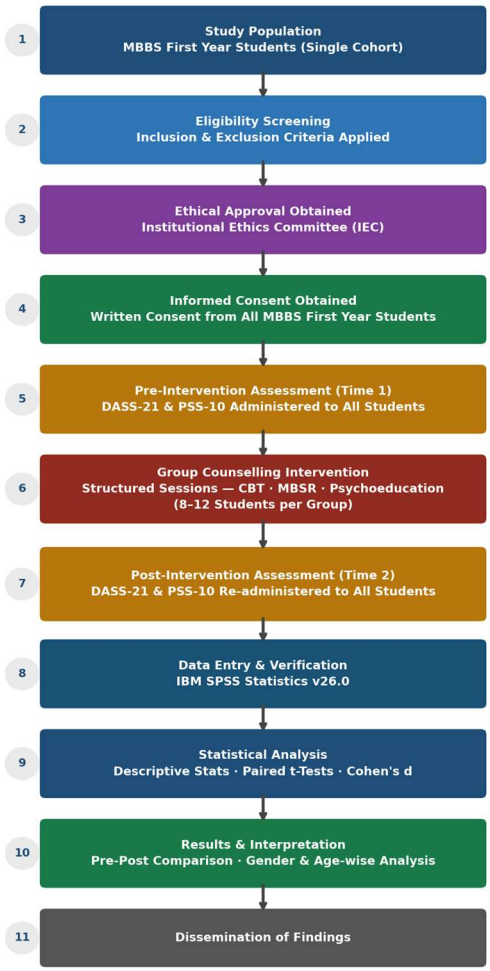
Sample Size and Sampling Strategy

The minimum required sample size was estimated using the formula $n = Z^2p(1–p)/d^2$, where Z = 1.96 (95% confidence level), p = 0.27 (expected prevalence of psychological distress in medical students, per Rotenstein et al., 2016), and d = 0.07 (margin of error). This yielded a minimum of 154 participants. A total of 143 first-year MBBS students were enrolled, representing the entire eligible cohort at the study institution during the academic year of data collection. A purposive sampling strategy was employed, whereby all first-year MBBS students meeting the eligibility criteria were invited to participate, maximising ecological validity and ensuring direct representativeness of the target population.

Study Procedure

Following IEC approval and participant consent, DASS-42 and PSS-10 were administered to all MBBS first year students as group assessments in a standardised classroom setting (Time 1 / Pre-intervention). The group counselling intervention was then delivered across scheduled sessions. Upon completion of the full intervention cycle, identical assessments were re-administered under the same standardised conditions (Time 2 / Post-intervention). Anonymity was maintained via participant identification codes throughout. Figure 7 provides a step-by-step flowchart of the complete study procedure.

Figure 7. Flowchart of Study Procedure (MBBS First Year Students)



Measures

Depression Anxiety Stress Scale-42 (DASS-42; Lovibond and Lovibond, 1995)

The DASS-42 was used to assess participants' depression, anxiety, and stress. It is a 42-item self-report scale comprising three 14-item subscales. Each item is rated on a four-point scale (0 = Did not apply to me at all; 3 = Applied to me very much, or most of the time), with subscale scores derived by summing item responses. Higher scores reflect greater psychological distress. The scale has demonstrated excellent internal consistency (Cronbach's □ = 0.91–0.97) and has been validated across diverse populations (17). Severity classification cutoffs follow normative bands established by Lovibond and Lovibond (17): Depression — Normal (0–9), Mild (10–

13), Moderate (14–20), Severe (21–27), Extremely Severe (□28); Anxiety — Normal (0–7), Mild (8–9), Moderate (10–14), Severe (15–19), Extremely Severe (□20); Stress — Normal (0–14), Mild (15–18), Moderate (19–25), Severe (26–33), Extremely Severe (□34).

Description of the intervention

The group counselling consisted of six weekly sessions, each of approximately 60–90 minutes duration, applied by the same trained counsellors throughout the programme. The sessions were predominantly psychoeducational, and aimed, in addition to providing information, at helping students identify their difficulties and learn different ways of managing their symptoms. Students were encouraged to express their concerns and to receive feedback from the rest of the participants. The essential content of each session is described in Table 2.

Intervention

The group counselling intervention was structured over multiple sessions and delivered by a trained counselling psychologist. Each session incorporated evidence-based techniques drawn from cognitive-behavioural therapy (CBT), psychoeducation, relaxation training, interpersonal skills development, and mindfulness-based stress reduction (MBSR). Session themes addressed examination-related stress, time management, help-seeking behaviour, peer relationships, and self-compassion. Groups were maintained at a size conducive to therapeutic cohesion (8–12 participants per group), and all sessions were held in a private, professionally appropriate setting.

Session	Session Content
Session 1.	Acquaintance of the participants with one another. Presentation of the aims of group counselling and of the norms to be followed. Psychoeducation on stress, anxiety, and depression — their nature, prevalence, and normalisation in the medical student context.
Session 2.	Presentation of the cognitive-behavioural model of stress and anxiety. Description of the vicious cycle of anxiety. Introduction of thought monitoring and cognitive restructuring. Assignment of self-monitoring
Session 3.	Emotion regulation strategies: progressive muscle relaxation, diaphragmatic breathing, and guided imagery. Identification and relinquishment of avoidance and safety behaviours. Introduction to mindfulness principles.
Session 4.	Social support and interpersonal coping: peer sharing, group cohesion exercises, and interpersonal problem-solving. Exploration of passive, aggressive, and assertive response styles in academic contexts.
Session 5.	Academic coping skills: time management strategies, goal-setting, and prioritisation. Managing perfectionism and performance anxiety. Discussion of obstacles to practising new skills.
Session 6.	Termination of group counselling. Review of progress and consolidation of skills. Relapse prevention planning. Group closure. Evaluation of depression, anxiety, and stress using the DASS-42.

Table 2. An outline of the main components of the group counselling intervention.

3.7 Statistical Analysis

Data were entered and analysed using IBM SPSS Statistics (Version 26.0). Descriptive statistics (frequencies, percentages, medians, and interquartile ranges [IQR]) were computed for all demographic and outcome variables. Given that DASS-42 and PSS-10 scores represent ordinal-level data and the assumption of normality could not be confirmed, non-parametric analysis was employed for pre-post comparisons. The Wilcoxon Signed-Rank Test was used to assess the statistical significance of pre-to-post intervention differences in DASS-42 subscale scores (Depression, Anxiety, Stress) and PSS-10 total scores. Effect sizes were calculated using the rank-biserial correlation coefficient r (small: 0.1; medium: 0.3; large: 0.5). Statistical significance was set at $p < .05$ (two-tailed).

RESULTS

Wilcoxon Signed-Rank Tests were performed for all variables to test the effectiveness of group psychological counselling in reducing students' depression, anxiety, stress, and perceived stress. From Table 3, the results reveal meaningful differences in depression scores ($Z = 7.87$, $p < 0.001$, $r = 0.66$) before (Mdn = 10.05) and after the intervention (Mdn = 8.92). There is a statistically significant difference in anxiety ($Z = 9.34$, $p < 0.001$, $r = 0.78$) pre-treatment (Mdn = 11.63) and post-treatment (Mdn = 10.45). Scores on stress showed a statistically significant reduction ($Z = 8.82$, $p < 0.001$, $r = 0.74$) from pre- (Mdn = 14.52) to post-treatment (Mdn = 13.35). The Total DASS-42 score declined significantly ($Z = 13.50$, $p < 0.001$, $r = 0.80$) from pre- (Mdn = 36.20) to post-intervention (Mdn = 32.71). PSS-10 total scores similarly demonstrated a statistically significant reduction ($Z = 4.04$, $p < 0.001$, $r = 0.34$) from pre-intervention (Mdn = 19.87) to post-intervention (Mdn = 19.03; $r = 0.34$).

Table 3. Pre- and post-treatment DASS-42 and PSS-10 scores (N = 143).

Measure	M	SD	Z	N	p	r
Depression (DASS-42)			**7.87***	143	<0.001	0.66
Pretest	10.05	7.73				
Posttest	8.92	7.25				
Anxiety (DASS-42)			**9.34***	143	<0.001	0.78
Pretest	11.63	7.05				
Posttest	10.45	7.33				
Stress (DASS-42)			**8.82***	143	<0.001	0.74
Pretest	14.52	8.16				

Posttest	13.35	7.60				
Total DASS-42			**13.50***	143	<0.001	0.80
Pretest	36.20	20.58				
Posttest	32.71	19.49				
PSS-10 Total			**4.04***	142	<0.001	0.34
Pretest	19.87	7.10				
Posttest	19.03	6.93				

** p < 0.001. r = rank-biserial correlation coefficient. PSS-10 N = 142 (complete paired data).*

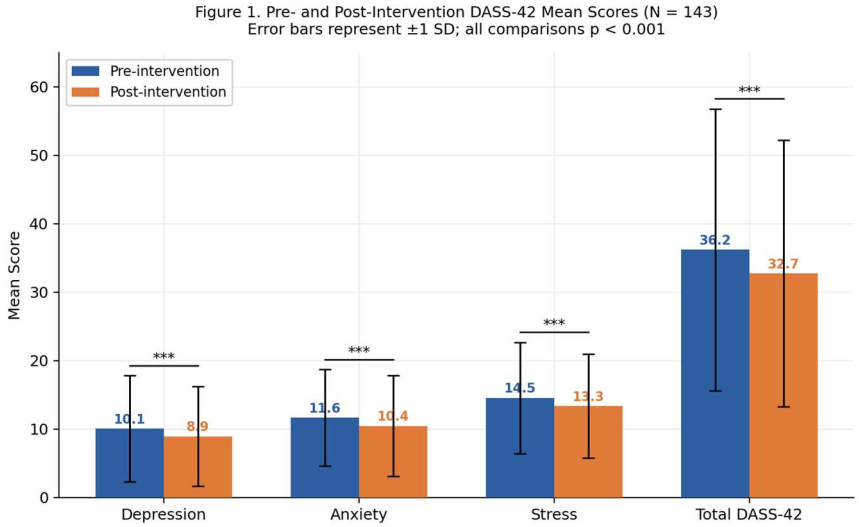


*Figure 1. Pre- and post-intervention DASS-42 and PSS-10 mean scores (N = 143). Error bars represent ±1 SD. *** p < 0.001 for all comparisons.*

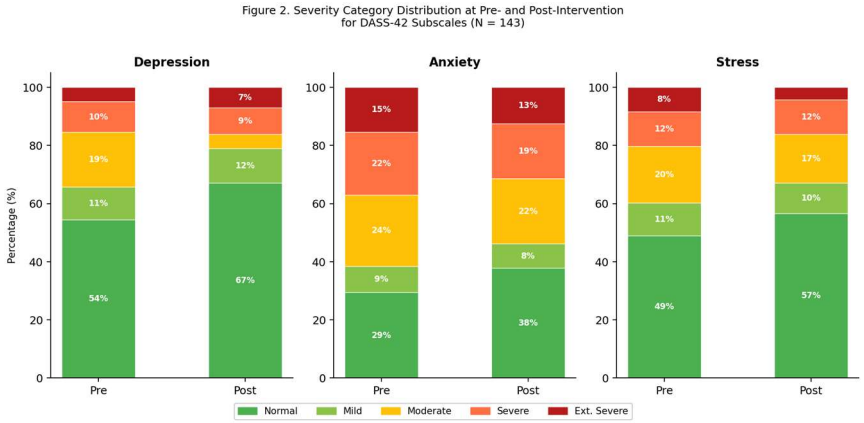


Figure 2. Severity category distribution at pre- and post-intervention for DASS-42 Depression, Anxiety, and Stress subscales (N = 143).

As far as sex differences are concerned, female students reported significantly higher baseline anxiety (M = 13.17, SD = 7.25 vs. M = 9.50, SD = 6.22; t = 3.17, p = 0.002), stress (M = 16.43, SD = 7.79 vs. M = 11.88, SD = 7.99; t = 3.41, p < 0.001), and perceived stress (M = 21.04, SD = 7.40 vs. M = 18.22, SD = 6.35; t = 2.37, p = 0.019) compared to male students. Depression scores did not differ significantly by sex at pre-intervention (t = 1.76, p = 0.080). Both male and female students demonstrated statistically significant pre-post reductions across all outcome measures (all p < 0.001). Table 4 presents the gender-wise results.

Table 4. Pre- and post-intervention DASS-42 and PSS-10 subscale scores by sex (N = 143).

Subscale	Male Pre M (SD)	Male Post M (SD)	Female Pre M (SD)	Female Post M (SD)	Sex diff. t / p
Depression	8.72 (7.14)	7.87 (6.55)	11.01 (8.04)	9.67 (7.67)	1.76 / 0.080
Anxiety	9.50 (6.22)	8.28 (6.19)	13.17 (7.25)	12.01 (7.72)	**3.17 / 0.002**
Stress	11.88 (7.99)	10.85 (7.08)	16.43 (7.79)	15.16 (7.49)	**3.41 / <0.001**
PSS-10	18.22 (6.35)	17.32 (5.88)	21.04 (7.40)	20.24 (7.39)	**2.37 / 0.019**

Note. Sex difference = independent-samples t-test at pre-intervention. All within-sex Wilcoxon signed-rank tests: p < 0.001.

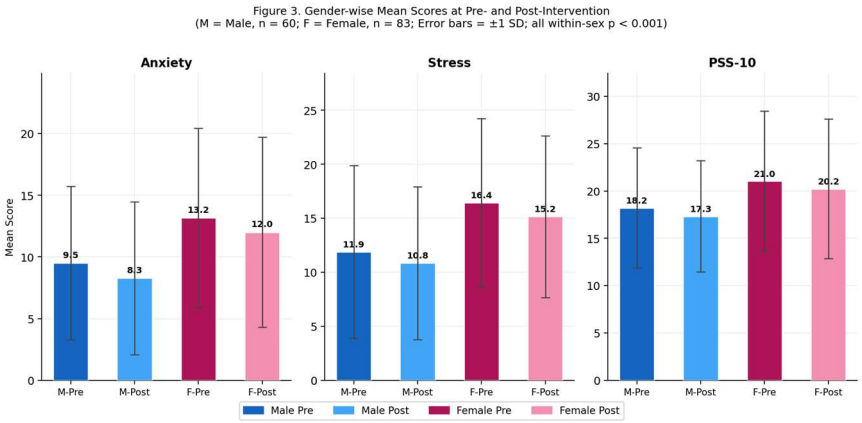


Figure 3. Gender-wise mean scores at pre- and post-intervention for significant subscales (M = Male, n = 60; F = Female, n = 83). Error bars = ±1 SD. All within-sex pre-post comparisons: $p < 0.001$.

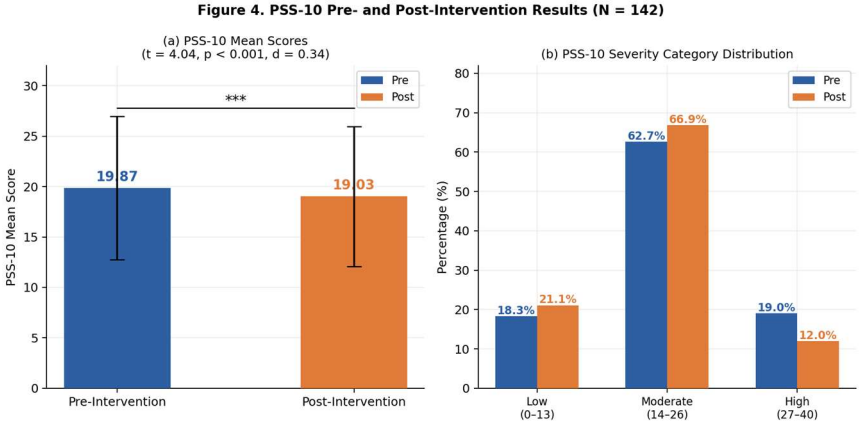


*Figure 4. PSS-10 pre- and post-intervention results (N = 142). (a) Mean scores with error bars (±1 SD); *** $p < 0.001$. (b) Severity category distribution showing reduction in high stress from 19.0% to 12.0%.*

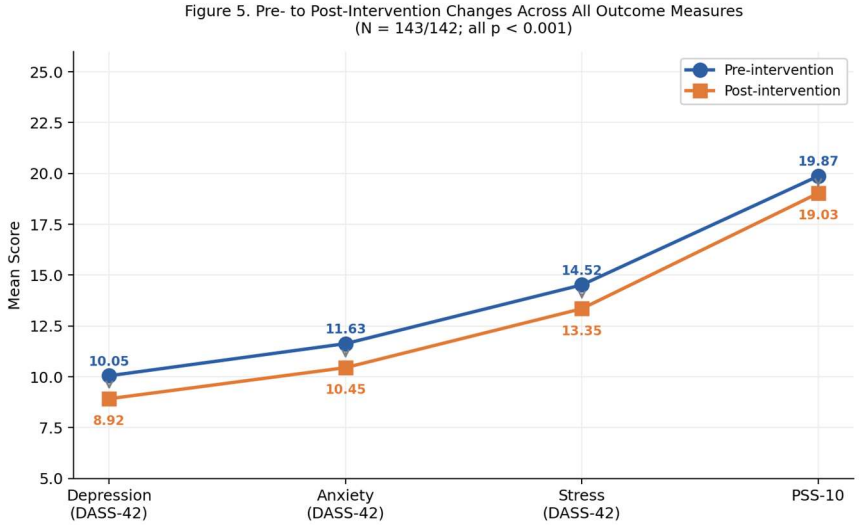


Figure 5. Pre- to post-intervention trajectory across all outcome measures (N = 143/142). Arrows indicate direction of change; all comparisons p < 0.001.

DISCUSSION

The study assessed the effect of group psychological counselling, based on a psychoeducation-supportive model, in reducing depression, anxiety, stress, and perceived stress in medical students. Based on the results, the group counselling programme significantly reduced all three DASS-42 subscale scores, the composite Total DASS-42 score, and PSS-10 total scores. The effect was consistent across both sexes, supporting all study hypotheses. The trajectory of improvement across all outcome measures is illustrated in Figure 5.

The participants' pretest scores on the DASS-42 indicated elevated levels of distress at baseline: 45.5% scored above the normal range for depression, 70.6% for anxiety, and 51.0% for stress (Figure 2). These figures are consistent with those reported in international studies of medical student populations (5, 9) and corroborate Indian data documenting high rates of psychological morbidity in this group (10, 11). The particularly high prevalence of above-normal anxiety suggests that anxiety is the predominant psychological concern for this population, a finding that aligns with Quek et al.'s (9) global meta-analytic estimates.

The results reveal the existence of meaningful differences in depression ($Z = 7.87$, $p < 0.001$) before (Mdn = 10.05) and after the intervention (Mdn = 8.92), as shown in Figure 1. This finding is consistent with previous studies investigating the effectiveness of group counselling on depression (14, 16, 19). Notably, the proportion of participants in the Moderate depression category fell from 18.9% to 4.9% post-intervention, suggesting clinically meaningful transitions in symptom severity.

There is a statistically significant difference in terms of anxiety ($Z = 9.34$, $p < 0.001$) from pre- (Mdn = 11.63) to post-treatment (Mdn = 10.45). This result is consistent with previous studies which examined the effects of group counselling on students' level of anxiety (14, 16, 20). As noted by Koutra et al. (14), perhaps the cognitive change in perception of the environment — from an uncontrollable threat to a manageable challenge — was sufficient to effect an enduring reappraisal of the situation.

Scores on stress showed a statistically significant difference ($Z = 8.82$, $p < 0.001$) from pre- (Mdn = 14.52) to post-treatment (Mdn = 13.35). Stress recorded the highest baseline median of all three DASS-42 subscales, consistent with evidence that academic and occupational stressors are the primary drivers of distress in medical education (3, 4). While significant improvement was observed, the Severe stress band remained unchanged at 11.9% at both time points, suggesting that the most entrenched stress may require longer or more intensive interventions.

PSS-10 scores showed a statistically significant reduction from pre-intervention (Mdn = 19.87) to post-intervention (Mdn = 19.03; $Z = 4.04$, $p < 0.001$), with a medium effect size ($r = 0.34$; Figure 4). The proportion of participants reporting high perceived stress (PSS-10 $\geq$ 27) declined from 19.0% to 12.0% post-intervention. Whereas the DASS-42 Stress subscale captures physiological and affective symptoms of tension over the preceding week, the PSS-10 reflects cognitive appraisal of global life stress over the past month (Cohen et al., 1983). The significant reduction in PSS-10 scores therefore indicates that the intervention was effective not only in attenuating acute stress symptomatology but also in shifting participants' broader appraisal of their life circumstances as stressful. These findings are consistent with prior research demonstrating the

efficacy of psychoeducation-based group interventions in reducing perceived stress among university students (23).

The results also revealed significant sex differences (Figure 3), with female students reporting significantly higher baseline anxiety ($p = 0.002$), stress ($p < 0.001$), and perceived stress ($p = 0.019$) than male students, consistent with well-established gender differentials in internalising disorders (22). Importantly, both male and female students demonstrated statistically significant improvements across all outcome measures post-intervention, indicating that the group counselling programme was effective regardless of sex.

It is almost a truism that group counselling is especially helpful in terms of relief from isolation, realisation that others share problems, and relief from unrealistic shame. Yalom and Leszcz (21) point out that probably the biggest advantage of group counselling is in helping a student realise that he or she is not the only person with a given problem. The members of the group who share the same difficulties can support each other, and may offer suggestions and alternative solutions to dealing with a particular problem (14).

Limitations and Future Directions

Several limitations of the present study warrant acknowledgement. First, the absence of a waitlist or active control condition in this single-group pre-post design precludes unambiguous causal attribution of observed improvements to the intervention itself. Second, the lack of a follow-up assessment means that the durability of therapeutic gains beyond the immediate post-intervention period remains unknown. Third, reliance on self-report measures introduces the possibility of response bias, including social desirability effects. Fourth, the sample was drawn from a single medical institution in India, which may limit the generalisability of findings to broader populations. Future research should adopt randomised controlled trial designs with active control conditions, multi-site sampling, and structured follow-up assessments at three- and six-month intervals.

CONCLUSION

In conclusion, the results of the present work strongly suggest that medical students should be encouraged to take part in group counselling to help alleviate depression, anxiety, stress, and perceived stress (14). The programme was effective in significantly decreasing participants' distress across all DASS-42 subscales and PSS-10 total scores, with the reduction in high perceived stress from 19.0% to 12.0% further underscoring the clinical relevance of the intervention. These are encouraging results demonstrating an effective form of the intervention in a medical student population.

Group counselling holds advantages over individual counselling in terms of cost-effectiveness, time efficiency, availability to a greater number of students simultaneously, and the therapeutic group dynamics of interpersonal learning, imitative behaviours, and reduced isolation (21). We believe that it is necessary to establish group interventions alongside individual counselling and other primary preventive measures — including psychoeducational seminars and institutional wellbeing policies — to promote mental health in medical students.

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