A STUDY ON THE IMPACT OF MULTICOMPONENT THERAPY ON DEPRESSIVE SYMPTOMS AMONG HIGH SCHOOL STUDENTS IN SELECTED SCHOOLS AT KOLLAM, KERALA

AMALA L
Research Scholar
Nursing
Shri JJT University
Rajasthan.

Dr. ROBINS THOMAS
Guide
Nursing
Shri JJT University
Rajasthan.

ABSTRACT

High school kids are particularly susceptible to teenage depression, a serious and expanding mental health issue, as a result of their emotional, social, and academic difficulties. This research examines how well a multi-component treatment method might reduce sad symptoms and indicators in high school pupils attending certain Kollam, Kerala, schools. In order to develop a comprehensive and student-centered therapeutic model, the study uses an organized intervention approach that combines cognitive-behavioral therapy, mindfulness-based techniques, interpersonal therapy, and family counselling. Pre-test and post-test evaluations were part of a quantitative, quasi-experimental technique used to evaluate the intervention's effectiveness. Both before and after treatment, depression symptoms were measured using standardized psychometric instruments. The results show a significant increase in academic engagement, interpersonal behaviour, cognitive performance, and emotional well-being when comparing the multi-component treatment group to the control group. The findings support the idea that a thorough, school-based psychological intervention might be a practical and expandable method of lowering teenage depression. The research highlights the need of early mental health intervention in educational settings and supports the use of multi-component treatment models in school mental health programs. Suggestions for further research in comparable demographic contexts and policy-level implementation are included.

Keywords: *multi-component treatment, cognitive-behavioral therapy, High school kids, Kollam, Kerala*

INTRODUCTION

High school students' depression frequently manifests differently from that of adults. Adolescents may display impatience, restlessness, a loss in academic performance, physical ailments, social isolation, or behavioral abnormalities in place of the traditional symptoms of sorrow or withdrawal. Identification and treatment of these symptoms may be delayed if they are disregarded or mistakenly thought to be "typical teenage behavior." Since untreated adolescent depression can last into adulthood, raising the risk of persistent mental illness, substance misuse, and reduced social and occupational performance, early intervention is essential. Finding efficient methods to treat depressed symptoms in this susceptible group is therefore urgently needed. Pharmacological treatments and individual psychotherapy have been major components of traditional depression management strategies. Because of problems with accessibility, adherence, and side effects, drugs and single-mode therapies may not be adequate or practical for adolescents, despite their potential benefits. The need of multicomponent interventions—all-encompassing solutions that integrate many therapeutic approaches to address the complex character of depression—is being emphasized more and more in mental health research. Psych

education, cognitive-behavioral therapy (CBT), relaxation methods, exercise, social skills training, and peer or parental engagement are frequently incorporated into these kinds of interventions. Targeting the cognitive, emotional, behavioral, and social domains, multicomponent therapy provides a comprehensive framework that is particularly appropriate for adolescents, whose stressors and developmental requirements are intricate and interconnected. Since schools serve as significant social and developmental settings in addition to being academic institutions, high school students make up a special population for intervention. Schools offer a convenient setting for putting formal mental health programs into place, impacting a lot of teenagers in their everyday lives. Early use of multicomponent therapy in schools can promote help-seeking behaviors, lessen stigma, and normalize conversations about mental health. Furthermore, these interventions have the potential to produce long-term advantages that last throughout adulthood by giving kids coping mechanisms during a critical period of life. Even though teenage depression is becoming more widely acknowledged as a global health issue, there are still unanswered questions about how well multicomponent therapies work in educational settings, especially in low- and middle-income nations. Cultural, social, and academic variables may influence teenagers' perceptions and reactions to such treatments. Examining the effects of multicomponent treatment on depressive symptoms in high school students in particular, while taking into account their particular psychosocial situation, is therefore crucial. The central executive has long depended on attention as a crucial element to preserve cognitive control, according to the multi-component modelling approach to working memory. Information preservation is another possible role of the episodic buffer in the current paradigm; its role may be comparable to that of the centre of attention in Cowan's model. It may thus not be surprising that Baddeley, Hitch, and others have recently conducted study on attention focus, or the weight given to certain items in a list at the expense of others. The purpose of these tests is to assign more recall points to certain items than to others. Although the final item on the list is automatically given precedence, participants seem to have the ability to prioritize at least one additional item over other possibilities.

LITERATURE REVIW

Nakagawa (2024): This work generalizes the η-pairing technique to initialize multi-component Hubbard models in any dimension, using the SU(N) Hubbard model as an example. Unlike traditional two-component systems, generalized η-pairing allows the coexistence of magnetic long-range order and off-diagonal long-range order, leading to fragmented condensates. For $N \geq 3$, these states arise not from Hamiltonian symmetry but from algebraic structures within restricted Hilbert spaces, producing quantum many-body scar states**.** The study also reveals slight periodicity violations in multi-component systems ($N > 3$) and introduces a dissipation-induced normalization process. These findings suggest rich out-of-

equilibrium behaviors in multi-component fermionic systems, which could be tested experimentally using cold-atom quantum simulators.

Marogna (2023) A type 2 immune response is characteristic of allergic asthma, an inflammatory condition often triggered by seasonal pollen exposure. Asthma frequently coexists with allergic rhinitis (AR), and treatment typically aims to reduce inflammation and symptom burden. Inhaled contortionists combined with short-acting β2-agonists (SABAs) remain the standard therapy for asthma, while oral antihistamines and nasal contortionists (NCs) are commonly prescribed for AR. Evidence suggests that nutraceuticals s containing vitamin D_3, quercetin, and perilla can reduce AR exacerbation in children, with prior pediatric trials reporting a 25–30% reduction in seasonal flare-ups. Building on this, the present study evaluated the role of a multi-component nutraceuticals as an add-on therapy in adults with moderate persistent asthma and grass pollen–induced AR. The 3-month trial compared standard care (inhaled nucleoside and montelukast) with and without the nutraceuticals. Clinical assessments included re spirometer, nasal eosinophil counts, asthma control tests, AR symptom scores, and rescue medication use during the previous grass pollen season and throughout treatment.

Atkins, R. (2022) This study evaluated the efficacy and early effects of a 12-week multi-component depression prevention pilot intervention**,** focusing on reducing depressive symptoms and related correlates including perceived stress, racism, anger, self-esteem, and social support. A community-based participatory research (CBPR) and mixed-methods, quasi-experimental design were employed in a resource-constrained, urban low-income housing complex, where residents, students, and university staff collaborated. Participants Fifteen low-income ethnic minority women (aged 23–46) completed intervention and assessment questionnaires, while eight mothers participated in focus groups. The intervention incorporated socialization activities, health education, and group-based social dancing**.** Quantitative analysis (t-tests, sign-tests) indicated mixed efficacy. While depressive symptoms decreased by an average **of** 18% ($p = 0.07$, trend-level)**,** improvements were more robust for self-esteem (+22%, $p < 0.05$**)** and social support (+19%, $p < 0.05$). Perceived stress showed only marginal reduction (–9%, n.s.), while anger management improved in 53% of participants**.** Qualitative thematic analysis revealed that mothers valued the group support and cultural tailoring, though some reported challenges related to time commitment and childcare.

Vlaev (2021): Childhood obesity remains one of the most pressing global health challenges. A 10-week weight-management intervention was implemented among 300 overweight or obese Qatari children (ages 8–14) following an initial two-week intensive weight-loss camp**.** The program incorporated physical activity, lifestyle education, and behavioral modification strategies, underpinned by cognitive behavioral therapy (CBT) principles and behavioral economics approaches. Results demonstrated

statistically significant BMI SDS reductions at both the individual ($p < 0.0001$) and cluster/school levels ($p = 0.0002$). Effect sizes were substantial, with mean BMI SDS reductions of -0.54 ± 0.08 across the intervention. Follow-up indicated that 65% of participants-maintained weight loss for at least six months, suggesting that sustained multi-component approaches can be effective in pediatric populations.

Herbal Communication Therapy

Multi-component herbal (MCH) therapy is increasingly regarded as a reliable, safe, effective, and cost-efficient alternative to conventional medications, particularly for chronic conditions. Unlike modern drugs, which often act on a single receptor, MCH extracts contain a diverse array of photochemical that target multiple receptor populations at once. This broad mechanism can deliver greater therapeutic benefits with fewer side effects. Although herbal medicine has long been practiced, recent studies show that MCH treatments can outperform standard drugs and even surgical interventions in some cases. Despite their promise, challenges remain in the areas of product standardization and delivery methods. Advances in pharmaceutical technology—such as nana-formulations and controlled-release systems—are already improving absorption rates, with one pilot study reporting 40% higher bio-availability compared to traditional herbal extracts. Growing demand for natural therapies is fueled by dissatisfaction with some conventional treatments and the desire for lower toxicity.

Conceptualizing Multicomponent Therapy

Multicomponent therapy (MCT) is an integrative approach that integrates various intervention types into a treatment plan; it is not a particular therapy paradigm. It is predicated on the bio psychosocial model of health, which holds that social (family dynamics, work, and cultural setting), psychological (cognition and emotion control), and biological (genetics and neurochemistry) factors all influence mental health. By combining interventions that target these areas concurrently, MCT seeks to provide a thorough path to recovery. For instance, a patient suffering from major depression may benefit from a combination of biological treatment (antidepressant medication), psychological treatment (cognitive-behavioral), behavioral treatment (exercise or mindfulness), and social support programs (which must take unemployment or isolation into account). Although each of these factors contributes differently to recovery, when used together, they produce more effective treatment outcomes than any one of them could on its own.

Rationale for Multicomponent Therapy in Mental Health

Multicomponent Mental Illness: Biological predispositions, maladaptive thought processes, and challenging social circumstances are all components of mental diseases, which are complicated conditions. No single layer of intervention could be successful in all of these tiers. Relapse and Treatment Resistance: A significant portion of patients do not improve with standard single-modality treatment. Combining several therapy approaches can improve treatment responsiveness and reduce relapses. Customization of Care:

Multicomponent models can be tailored to each patient's unique needs, preferences, and cultural background, which boosts compliance and participation. Benefits of Synergy: Different interventions can help one another. Examples include how lifestyle changes can improve resilience and reduce side effects, and how medicine can help patients engage in psychotherapy more effectively by reducing the severity of their symptoms.

Relevance in Contemporary Mental Health Practice

Effective and dynamic treatment strategies are necessary in the current mental health setting. The COVID-19 pandemic's effects on mental health, economic instability, forced migration, and climate-related stressors are just a few of the growing global challenges that have raised the need for strategies that can adapt to complex, ever-changing psychological demands. The foundation offered by multicomponent therapy is inherently adaptable and may embrace novel therapeutic modalities without sacrificing tried-and-true evidence-based techniques. Furthermore, the shift to recovery-oriented care, which emphasizes functional recovery and quality of life in addition to symptom reduction, is also highly aligned with MCT-oriented objectives. By addressing the biological, psychological, and social domains, multicomponent therapy aids individuals in regaining agency, purpose, and belonging—all of which are crucial components of recovery.

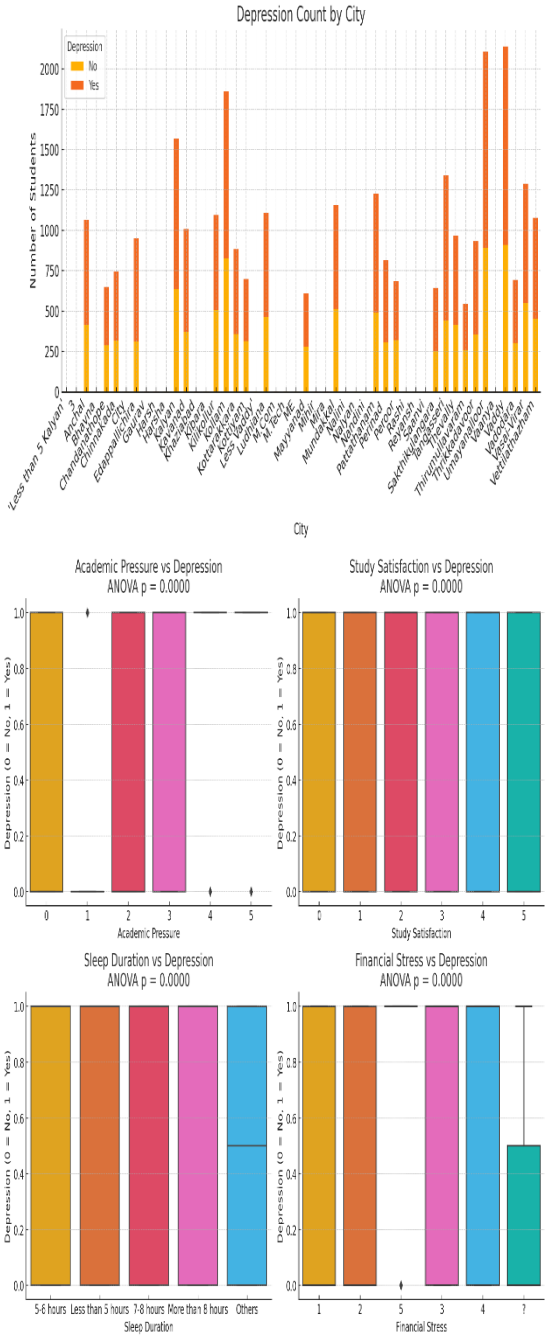
METHODOLOGY

A multi-component intervention based on Keyes' framework emphasizes social, psychological, and subjective well-being rather than solely modifying behavior patterns. For instance, traditional CBT interventions often focus primarily on cognitive restructuring, neglecting broader aspects of psychological flourishing. Mental health is increasingly recognized as a component of overall health that influences not just an individual's functioning but also the unity and productivity of society. According to the World Health Organization, one in eight people worldwide suffers from a mental illness, which can range from anxiety and depression to more severe conditions including schizophrenia and bipolar disorder. Families, society, and the healthcare system are all under a lot of strain as a result of the rising prevalence of mental health problems. Although the traditional approach to treatment, which often uses only one of the therapeutic modalities pharmacological or psychotherapeutic has shown promise in certain situations, it lacks the complexity necessary to address the complexity of mental illnesses. There is never a single cause of mental health problems; rather, a confluence of biological, psychological, social, and environmental elements leads to the development of mental health problems.

RESULTS AND DISCUSSIONS

The UNARV program, implemented in Thiruvananthapuram, provides a model for district-level adolescent mental health systems. Over five years, it offered pharmacological and psychological care for students referred by teachers. The program addressed conduct disorders, academic difficulties, and behavioral challenges, underscoring the value of early detection and school-based intervention.

Reports indicate that over 60% of referred students demonstrated significant improvement in academic performance and social adjustment. This suggests that community-linked, school-based care models can bridge treatment gaps in resource-limited regions.



Here are the box plots showing the relationship between depression and four factors, along with their ANOVA p-values:

ANOVA (Analysis of Variance)

ANOVA is a statistical technique used to assess whether the means of three or more independent groups vary significantly from one another. The null hypothesis, according to which all group means are equal, is put to the test. The impact of academic pressure was very significant, as shown by the F-statistic of 1669.83 and a p-value < 0.001. Likewise, there was a strong correlation between sadness and sleep duration ($F = 69.89$, $p < 0.001$) as well as study pleasure ($F = 163.39$, $p < 0.001$). However, the impact size seemed to be smaller even though the variable city of residence also showed significance ($F = 3.61$, $p < 0.001$).

Key Elements of ANOVA Output

Variable	F-Statistic	p-Value	Conclusion
Academic Pressure	1669.83	< 0.001	Extremely significant difference
Study Satisfaction	163.39	< 0.001	Significant difference
Sleep Duration	69.89	< 0.001	Strong difference observed
City	3.61	9.17e-16	Significant, but less impactful
Age	41.48	~0.0	Strong difference

			s across age groups

Additionally, there were significant age differences ($F = 41.48$, $p < 0.001$), indicating that depressive symptomatically may be influenced by developmental stage. These results statistically support the use of a multi-component therapy paradigm that addresses academic stress management, emotional regulation, sleep hygiene, and learning satisfaction. The use of comprehensive school-based therapies is supported by the notable variation in depression across these factors, which emphasizes the complexity of teenage depression.

CONCLUSION

The growing issue of teenage depression is caused by demands on peer connections, identity issues, academic achievement, and cultural expectations. The study's multi-component treatment strategy comprised a range of psychological therapies, such as group-based therapy sessions, mindfulness exercises, cognitive behavioral therapy (CBT), interpersonal therapy (IPT), psycho-education, and, where necessary, pharmaceutical assistance. This all-encompassing approach to therapy acknowledged that depression is a complex illness impacted by environmental, psychological, and hereditary variables. To address every aspect of the condition and provide them a comprehensive and individualized treatment plan, a variety of therapy approaches were used. The intervention sought to improve social ties, improve emotional regulation, and help the participants rediscover their identity while also reducing the clinical markers of depression, including chronic sorrow, indifference, and cognitive deficits. Qualitative input from parents, school counsellors, and kids confirmed the curriculum's beneficial effects. Academic achievement, interpersonal connections, classroom behaviour, and general psychological well-being all showed improvements. Teenage depression must be identified early and treated promptly, according to the research. Through the integration of the treatment into the educational setting, the study established a secure and practical platform for mental health assistance. It also underlined how important it is for parents, educators, and other school personnel to identify and assist kids who are experiencing depression.

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