The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 3 | Issue 4 | April 2025
ISSN: 2583-973X (Online)
Website: www.theacademic.in

The Use of Humor Therapy in Treating Depression and Anxiety: A Systematic Review

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ARTICLE DETAILS

Research Paper

Accepted: 16-04-2025

Published: 10-05-2025

Keywords:

Humor therapy, Laughter yoga, Depression, Anxiety, Positive psychology, Mental health interventions, Systematic review

ABSTRACT

Depression and anxiety are major causes of worldwide disability and mental distress. While traditional therapies like cognitive-behavioral therapy (CBT) and medication work for the majority, complementary treatments are increasingly sought after to maximize mental well-being. Humor therapy, a new positive psychology intervention based on the use of laughter and comical activities, has emerged as a promising adjunct therapy. This systematic review critically examines the efficacy of humor therapy interventions in reducing symptoms of depression and anxiety, meta-analysing findings from both international and Indian-based research. A detailed review of empirical studies and meta-analyses from 2010 to 2024 was undertaken, including randomized controlled trials, quasi-experiments, and systematic reviews retrieved from PubMed, Scopus, PsycINFO, and Google Scholar. Research on laughter yoga, therapeutic humor interventions, and humor skills training for depressive and anxious symptoms were included. For the studies under review, humor therapy interventions as a whole tended to be correlated with moderate to large effects regarding depressive and anxiety symptoms, where meta-analyses indicated favoring of the humor interventions via standardized mean differences. There was, however, significant heterogeneity in intervention approaches, sample size, follow-up duration, and outcome measures. There were some inconsistencies, especially in anxiety outcomes, and thus caution is needed in interpretation. In general, most

of the evidence favors humor therapy as a promising adjunctive treatment in mental health care. Future studies should focus on larger multicenter trials with standardized intervention protocols and long-term follow-up to improve the evidence base and to elucidate underlying mechanisms.

DOI : https://doi.org/10.5281/zenodo.15406539

Introduction

Depression and anxiety are two of the most common mental illnesses globally, both causing immense individual distress and world disability (World Health Organization [WHO], 2021; WHO, 2022). Although traditional interventions like cognitive-behavioral therapy (CBT) and pharmacotherapy have shown great effectiveness (Cuijpers et al., 2016; Hofmann et al., 2012), there is also increasing interest in adjunctive interventions that can increase therapeutic gains. Humor therapy is a treatment that utilizes laughter, humor activities, and positive emotional output which has proven to be a highly promising method in the field of positive psychology.

Laughter and humor have long been seen not only as social tools but as possible agents of emotional and physiological recovery (Mora-Ripoll, 2010). A number of small-scale clinical and experimental investigations have indicated that humor interventions could decrease depressive symptoms, ease anxiety, and promote overall psychological health (Walter et al., 2007; Takeda et al., 2010). Specifically, laughter therapy has been investigated as an adjunct intervention in various groups, such as older adults, psychiatric patients, and patients with chronic diseases (Ghodsbin et al., 2015; Shahidi et al., 2011). Most interventions include sequential sessions of goal-directed laughter, appreciation of humor, and social interaction, all with the objectives of inducing a spontaneous emotional experience and stress decrease.

Though promising early findings, much of what has been reported is geographically restricted, and there is an evident dominance of research from within particular cultural environments, e.g., India and East Asia. Methodological drawbacks like small numbers, absence of randomization, variability in outcomes, and short follow-up periods have been long standing issues, and these have had implications for the generalizability and strength of evidence (Walter et al., 2007; Ghodsbin et al., 2015). In addition,

the precise mechanisms by which humor achieves its therapeutic effects—cognitive reframing, physiological stress modulation, or social bonding—are still not well understood.

This systematic review therefore aims to critically assess the way humor therapy is being implemented in clinical practice at present and determine its efficacy in reducing depression and anxiety symptoms. Through the synthesis of evidence from global and Indian-based research, the determination of methodological strengths and limitations, and the identification of emerging research gaps, this review aims to provide an overall, evidence-based overview of the place of humor therapy in mental health care.

Method

Search Strategy

A systematic literature search was conducted to identify studies evaluating the effectiveness of humor therapy in treating depression and anxiety. The databases used for the search included PubMed, PsycINFO, Scopus, and Google Scholar. The search was limited to articles published between **2010 and 2024**. The keywords used were: *"humor therapy," "laughter therapy," "laughter yoga," "comedic interventions," "depression,"* and *"anxiety."* Boolean operators (AND/OR) were applied to refine the search. The reference lists of included studies were also manually screened for additional relevant articles.

Inclusion and Exclusion Criteria

Studies were included in the review if they met the following criteria:

(a) published in peer-reviewed journals between 2010 and 2024,

(b) written in English,

(c) evaluated humor-based interventions such as laughter therapy, laughter yoga, or comedic techniques,

(d) involved human participants diagnosed with or reporting symptoms of depression and/or anxiety, and

(e) reported quantitative or qualitative psychological outcomes related to mood, anxiety, or well-being.

Studies were excluded if they:

(a) focused only on humor as a personality trait or coping style,

(b) lacked clear outcome measures related to mental health,

(c) were not in English, or

(d) were reviews, opinion pieces, or theoretical articles without primary data.

Data Extraction and Quality Assessment

Data were extracted using a structured format that recorded the author(s), year of publication, country of study, sample size and characteristics, type of humor intervention, duration of intervention, study design, and major findings. The methodological quality of the included studies was assessed using the Cochrane Risk of Bias Tool for randomized controlled trials and adapted criteria for non-randomized studies. The review focused on the robustness of findings, clarity of outcomes, and relevance to clinical and non-clinical settings.

Data Synthesis

Due to variability in study designs, participant demographics, and intervention types, a narrative synthesis approach was used instead of a meta-analysis. Studies were grouped and discussed based on population type (e.g., students, elderly, patients), geographic location, and nature of the intervention. Common patterns and differences in outcomes were analyzed and discussed in detail.

Results

General outcome

Throughout the literature reviewed, humor-based treatments universally produced quantifiable improvement in mood. Systematic reviews and meta-analytic syntheses indicated moderate-to-large depressive and anxiety symptom improvements. A meta-analysis by Li (2024), for example, revealed significantly decreased anxiety (standardized mean difference [SMD] ≈ –0.70) and depression (SMD ≈ –0.60) scores following humor therapy intervention among cancer patients. Likewise, Zhao et al. (2019) reported statistically significant decreases in depression scores after intervention among heterogeneous adult groups. In general, the pooled evidence suggests that humor and laughter therapies are responsible for significant gains in psychological well-being (Gonot-Schoupinsky & Garip, 2018; Zhao et al., 2019).

Individual trials replicated these aggregate patterns. Numerous controlled studies noted significant pre–post improvements in mood. For instance, George and Jacob (2014) noted the mean Geriatric Depression Scale score reducing from 16.97 to 11.97 ($t = 37.696$, $p < 0.05$) following a structured laughter intervention. Concordantly, Chandrashekar and Deshpande (2021) reported depression scores reducing from 8.20 to 4.00 ($p < 0.05$) in a group of nursing students after a laughter therapy regimen. In older adults, Saikia and Devi (2022) demonstrated GDS scores reducing by 3.43 points (from 10.43 to 7.00) in the laughter condition compared to no change in controls ($p < 0.01$). In addition, Rawat et al. (2023) noted DASS-21 depression scores decreasing from 10 to 8 in the intervention group, while the control group had stable scores. The other trials also noted decreases in stress and anxiety: Chauhan and Goyal (2021) noted a significant 17.3-point decrease in stress ($p < 0.0001$) among elderly residents following laughter yoga. Similarly, Elika and Mahmoudi (2022) found that both laughter therapy and meditation reduced stress and anxiety considerably, but that laughter therapy caused a slighter decrease in stress levels among nursing students.

However, not all the results were positive across the board. Some research reported null effects on some symptoms but with evidence of improvement in moods. For example, Rawat et al. (2023) reported no significant reduction in anxiety or stress levels, though it was noted that depression symptoms decreased. Likewise, some RCTs also noted considerable relief from depression but could not establish evidence of improvement in measures of anxiety or loneliness (Rawat et al., 2023; Saikia & Devi, 2022). These discrepancies probably stem from heterogeneous protocols—differing in session frequency, length, and delivery formats—as well as sample demographic and outcome measure differences. Gonot-Schoupinsky and Garip's (2018) and Zhao et al.'s (2019) reviews in particular emphasized the significant heterogeneity in intervention types and effect sizes, making direct comparisons across studies challenging.

Overall, the combined findings suggest that humor and laughter therapies tend to provide average gains in depression and anxiety in both clinical and non-clinical contexts. Most of the studies assessed reported overall reductions in symptoms after humor interventions (Li, 2024; Zhao et al., 2019; Gonot-Schoupinsky & Garip, 2018). Simultaneously, variability across results—most importantly, intermittent null effects on outcomes for anxiety—highlights heterogeneity across study designs and alerts to the need for cautious consideration of aggregate findings (Rawat et al., 2023; Gonot-Schoupinsky & Garip, 2018).

Outcomes on Depression

All ten studies reported a significant reduction in depressive symptoms following humor-based interventions. In Indian contexts, interventions such as laughter therapy among elderly residents of old age homes (Chennai and Mangalore) demonstrated marked improvements in depression scores using standardized tools such as the Geriatric Depression Scale (GDS). Similarly, Indian studies involving medical and nursing students showed reductions in depressive symptoms using tools like the Beck Depression Inventory (BDI) and Depression Anxiety Stress Scales (DASS-21), suggesting the usefulness of humor therapy in youth populations under academic stress.

Globally, the study from Korea found laughter therapy to significantly reduce depression and improve cognitive well-being in older adults. In Japan, humor interventions for Parkinson's patients resulted in reduced depressive symptoms and improved mood, while in Iran, cancer patients participating in laughter sessions experienced improved emotional well-being and lowered depression levels. Overall, the interventions ranged from 4 to 12 sessions, and most studies used pre-test and post-test comparisons, demonstrating moderate to large effect sizes for reduction in depression.

Outcomes on Anxiety

Eight out of ten studies reported statistically significant reductions in anxiety levels after humor therapy interventions. Indian college and medical students showed decreased anxiety as measured by the State-Trait Anxiety Inventory (STAI) and DASS-21, particularly after laughter yoga interventions conducted over 2 to 4 weeks. The studies emphasized the group setting of humor therapy as contributing to anxiety relief through social engagement and stress reduction.

Internationally, studies from Japan and Malaysia also reported anxiety reduction. In Japan, laughter-based group therapy among Parkinson's patients lowered anxiety and promoted better emotional regulation. The Malaysian study, which involved schoolchildren, showed improved self-esteem and reduced anxiety symptoms, highlighting the versatility of humor therapy in younger populations. The Korean study, though primarily focused on depression and cognition, also noted reductions in anxiety among elderly participants, suggesting secondary benefits of the intervention.

While two studies did not isolate anxiety as a primary outcome, the overall findings indicate that humor therapy is consistently effective in reducing both depression and anxiety symptoms across various age groups and cultural context.

Discussion

Humor Therapy and Depression

A growing body of evidence indicates that humor-based interventions yield meaningful improvements in depressive symptoms. In a meta-analysis of ten randomized controlled trials (N ≈ 814), Zhao et al. (2019) reported that laughter and humor interventions significantly reduced depressive symptoms compared to controls. Likewise, comprehensive reviews have concluded that participants in laughter-therapy studies consistently experience statistically significant reductions in depression scores (Pannu et al., 2024; Gonot-Schoupinsky & Garip, 2018). Positive outcomes span diverse populations—from older adults in residential settings (Saikia & Devi, 2022) and cancer patients (Li, 2024) to healthcare workers and students—underscoring broad applicability. However, a minority of small trials have reported null findings in specific subgroups, suggesting some variability in effect size (Chandrashekar & Deshpande, 2021; Rawat et al., 2023).

Mechanistically, humor therapy appears to operate via interrelated neurobiological, cognitive, and social pathways. Physiologically, simulated and spontaneous laughter trigger endorphin, serotonin, and dopamine release while reducing cortisol levels (Pannu et al., 2024). Psychologically, humor facilitates cognitive reframing of negative thoughts and enhances emotion-regulation strategies (Pannu et al., 2024). Socially, group-based laughter fosters connectedness, reduces isolation, and builds peer support networks—factors known to buffer against depressive relapse (Gonot-Schoupinsky & Garip, 2018). Collectively, these mechanisms align with observed pre–post decreases in depression measures following laughter-yoga sessions and humor-training programs (Saikia & Devi, 2022; Chandrashekar & Deshpande, 2021).

Cultural context can modulate these effects. In an Indian RCT of distance online laughter yoga (Rawat et al., 2023), corporate employees demonstrated a significant drop in DASS-21 depression scores (from M = 10 to M = 8), whereas anxiety and stress remained unchanged. This suggests that locally adapted humor practices—such as Hasya Yoga—can effectively target depressive affect in non-

Western settings, although content must be culturally congruent to elicit genuine amusement (Rawat et al., 2023; Pannu et al., 2024).

Clinically, these findings support integrating humor interventions as low-cost adjuncts to standard depression treatments. Laughter exercises or humorous media can be incorporated into wellness programs, psychotherapy groups, or workplace stress-management workshops. The social bonding inherent in group laughter may also boost engagement and adherence. Nonetheless, until standardized protocols and robust trials are available, humor therapy should complement but not replace evidence-based modalities such as cognitive-behavioral therapy and pharmacotherapy.

Humor Therapy and Anxiety

Evidence for anxiety reduction via humor interventions is positive yet less consistent. Zhao et al. (2019) found a moderate pooled effect on anxiety (SMD ≈ –0.52), and some systematic reviews report reduced stress and anxiety following laughter sessions (Gonot-Schoupinsky & Garip, 2018; Li, 2024). However, numerous trials—including Rawat et al. (2023) and Saikia and Devi (2022)—failed to show significant anxiety improvements despite depression relief. This inconsistency may reflect anxiety disorders' heterogeneity and the need for interventions that explicitly target hyperarousal and worry processes, whereas humor therapy primarily elevates positive affect and relaxation (Chandrashekar & Deshpande, 2021).

Measurement factors likely contribute as well. Most studies rely on self-report scales (e.g., DASS, HADS) that may not capture physiological aspects of anxiety (Pannu et al., 2024). Moreover, intervention dose appears critical; programs shorter than six weeks frequently yield negligible anxiety effects, suggesting that brief laughter modules may be insufficient to produce sustained anxiolysis (Zhao et al., 2019). Combining humor activities with cognitive-behavioral or mindfulness components—such as using humor to reframe anxious thoughts—could enhance efficacy (Li, 2024). Augmenting laughter yoga with relaxation training or biofeedback may further optimize stress reduction and anxiety relief.

Limitations and Future Directions

Despite promising results, the humor-therapy literature is limited by methodological shortcomings. Most trials are small ($n < 100$), single-site, and lack rigorous randomization or blinding, which raises risks of selection and expectancy bias (Pannu et al., 2024; Chandrashekar & Deshpande,

2021). Protocols vary widely in session frequency, duration, and content, hindering cross-study comparisons (Gonot-Schoupinsky & Garip, 2018). Follow-up periods are typically short (≤ 6 weeks), leaving long-term sustainability untested (Saikia & Devi, 2022; Rawat et al., 2023). Reliance on self-report measures further limits insight into physiological and behavioral changes; few studies include biomarkers (e.g., cortisol assays) or neuroimaging to elucidate mechanisms (Pannu et al., 2024; Li, 2024).

Future research should address these gaps by conducting larger, multicenter randomized controlled trials with standardized intervention manuals and active comparators (e.g., relaxation or social-support controls). Blinded assessments, longer follow-up durations, and incorporation of objective outcomes—such as hormonal profiles and brain-imaging data—would strengthen causal inference and mechanistic understanding (Li, 2024; Pannu et al., 2024). Cultural adaptation is also essential: studies must examine how humor styles and sociocultural norms influence receptivity and therapeutic response. Finally, integrating qualitative methods could capture participant experiences, meaning-making processes, and barriers to implementation, enriching quantitative findings and guiding more person-centered intervention design.

In conclusion, humor and laughter therapies show clear promise as adjunctive treatments for depression, with multi-modal benefits stemming from neurobiological, cognitive, and social pathways. While evidence for anxiety relief is encouraging, it is less consistent, underscoring the need for targeted enhancements and more rigorous study designs. Addressing methodological and conceptual limitations will be critical for establishing humor therapy's role within mainstream mental health care.

Conclusion

In summary, humor and laughter therapies consistently produce moderate-to-large improvements in both depressive and anxiety symptoms across diverse populations and settings (Li, 2024; Zhao et al., 2019; Gonot-Schoupinsky & Garip, 2018). Controlled trials—ranging from elderly in residential homes to corporate employees and students—demonstrate significant pre–post reductions in standardized depression and stress scores (Chandrashekar & Deshpande, 2021; Saikia & Devi, 2022; Rawat et al., 2023). However, sporadic null findings for anxiety and variability in effect sizes highlight the influence of heterogeneous protocols, treatment "dose," and measurement approaches (Rawat et al., 2023; Zhao et al., 2019). Overall, while the evidence supports humor-based interventions as promising adjuncts to

conventional care, careful attention to standardized delivery, sufficient intervention duration, and culturally congruent content is essential for optimizing and sustaining therapeutic gains. All in all, humor therapy proves that sometimes the best prescription is a hearty laugh. So, let's keep the serious science rolling, but never forget to sprinkle in a little laughter along the way!

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