

Humor and Laughter Therapy for Anxiety and Depression Among Hospitalized Patients: A Narrative Review of the Evidence

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Abstract

Anxiety and depression are common among hospitalized patients, particularly those undergoing long-term care, and are linked to poorer recovery and reduced quality of life. Humor and laughter therapy have been proposed as low-cost, non-pharmacological adjuncts to reduce psychological distress in clinical settings, and a growing body of published trials and meta-analyses has examined their effects, although findings vary across populations and intervention formats. This narrative review synthesizes previously published evidence on the effects of humor and laughter therapy on anxiety and depression among hospitalized and institutionalized patients, with particular attention to long-term care settings. No primary data were collected; evidence was drawn exclusively from previously published randomized controlled trials, quasi-experimental studies, and meta-analyses identified through published academic sources. A quasi-experimental comparison study conducted across two long-term care hospitals found significantly greater improvement in depression and sleep among patients receiving structured laughter therapy, delivered as eight sessions of 40 minutes twice weekly, compared with a no-intervention comparison group ($t = -7.12$, $p < .001$). A meta-analysis of 814 participants across 10 studies found that laughter interventions significantly reduced depression and anxiety and improved sleep quality, with stronger depression benefits associated with longer intervention duration. A separate meta-analysis of randomized trials reported a significant moderate-to-large effect on anxiety (SMD = -0.83 , 95% CI -1.12 to -0.54), with laughter yoga showing the largest effect (SMD = -1.02 , 95% CI -1.51 to -0.52). A randomized trial among older adults similarly reported reduced anxiety and insomnia following laughter therapy, while a pilot randomized trial of distance laughter therapy found no significant between-group difference in depression or anxiety, though the intervention group showed a unique reduction in parental stress. Overall, published evidence generally associates humor and laughter therapy with reduced anxiety and depression in hospitalized and long-term care populations, though results are not uniform across all designs, with structured, in-person, longer-duration interventions appearing more effective than brief or remote formats.

Keywords: humor therapy; laughter therapy; anxiety; depression; hospitalized patients; long-term care; narrative review

Introduction

Anxiety and depression are among the most prevalent mental health conditions worldwide. In 2021, global estimates placed the prevalence of anxiety disorders at 359.2 million cases and

depressive disorders at 332.4 million cases, together accounting for over 9% of all disease burden and nearly two-thirds of all mental health disorder cases globally (Zhang et al., 2026). These figures are projected to keep rising, with anxiety disorders expected to affect more than 515 million people and depressive disorders over 466 million people by 2040, with the greatest increases occurring in middle- and low-resource settings (Zhang et al., 2026). Globally, an estimated \$925 billion in lost productivity has been attributed to depression and anxiety annually, yet investment in treatment remains inadequate, with high-income countries spending roughly 25 times more on care than middle- and low-income countries (Zhang et al., 2026). This funding disparity is particularly consequential for hospitalized patients, whose psychological distress often compounds their physical illness burden without corresponding access to psychological care.

Beyond pharmacological management — which carries limitations including side effects, drug interaction risk in medically complex inpatients, and cost — there is a recognized need for accessible, non-pharmacological adjuncts to standard hospital care (Akimbekov & Razzaque, 2021). Humor and laughter therapy have been proposed as one such adjunct. As a non-invasive, cost-effective, and easily implementable intervention, therapeutic laughter can physiologically lessen pro-stress factors while increasing mood-elevating anti-stress factors, thereby reducing anxiety and depression without pharmacological intervention (Akimbekov & Razzaque, 2021). The proposed physiological pathway is reasonably well documented: laughter-induced endorphin release has been shown to help reduce depressed mood, and reductions in inflammatory markers such as IL-6 and TNF-alpha have been observed following laughter intervention in clinical populations (Akimbekov & Razzaque, 2021).

Empirical evidence on clinical outcomes, while smaller in volume than the mechanistic literature, is encouraging but not entirely uniform. A meta-analysis of 814 participants across 10 randomized controlled trials found that laughter and humour interventions significantly decreased depression and anxiety and improved sleep quality in adults, with the benefit on depression being more pronounced following longer-term laughter intervention (Zhao et al., 2019). Among older adults specifically, a randomized controlled trial found that a laughter therapy program reduced anxiety and insomnia and improved overall general health (Ghodsbin et al., 2015). Within long-term institutional care — the population of greatest relevance to the present review — a quasi-experimental study comparing laughter therapy against a no-intervention comparison group across two long-term care hospitals found significantly greater improvement in depression and sleep among patients receiving a structured laughter therapy protocol ($t = -7.12$, $p < .001$; Han et al., 2017). However, not all trials report significant between-group effects. A pilot randomized controlled trial of remotely delivered laughter therapy for mothers experiencing psychological distress during the COVID-19 pandemic found significant symptom improvement in both the intervention and control conditions, with no statistically significant difference between them, although the intervention group showed a unique additional reduction in parental stress (Ko & Park, 2023). This finding underscores that intervention format, delivery mode, and duration may meaningfully moderate outcomes, and that the evidence base should not be treated as uniformly positive. Taken together, the existing literature suggests a plausible and partially evidenced link between humor and laughter therapy and reduced anxiety and depression in clinical populations, but the evidence base specific to long-term hospitalized inpatients remains comparatively thin relative to community-dwelling older adults and general elderly care populations, and is drawn overwhelmingly from East Asian, Middle Eastern, and Western clinical settings (Ghodsbin et al., 2015; Han et al., 2017; Ko & Park, 2023; Zhao et al., 2019). No substantial published synthesis has yet examined this evidence base through the lens of long-term hospitalization in an African

clinical context. This review therefore synthesizes existing published evidence on humor and laughter therapy's association with anxiety and depression outcomes among hospitalized patients, with particular attention to long-term care settings, in order to consolidate current knowledge and clarify where the evidence remains strongest, weakest, or entirely absent.

Literature Review

Quantitative Synthesis Across General Adult Populations

Several meta-analyses provide a quantitative foundation for humor and laughter therapy's psychological effects, though none focus exclusively on hospitalized inpatients. In one of the broadest syntheses to date, a meta-analysis of 45 studies comprising 2,547 randomized participants found that laughter-inducing interventions produced significant positive effects on mental health outcomes ($g = 0.74$, 95% CI [0.48, 1.00]), alongside significant physiological ($g = 0.61$) and physical health ($g = 0.59$) benefits, though with substantial heterogeneity across studies ($I^2 = 80\text{--}86\%$) (van der Wal & Kok, 2019). A more recent dose-response meta-analysis of 33 randomized controlled trials extended this evidence by identifying an optimal cumulative treatment duration of 400–600 minutes, beyond which additional benefit plateaued, and found significant effects on depression (SMD = -0.90, 95% CI [-1.29, -0.52]), anxiety (SMD = -0.83, 95% CI [-1.16, -0.50]), and stress (SMD = -0.68, 95% CI [-1.02, -0.33]) (Liu et al., 2026). This dose-response finding is one of the more methodologically valuable contributions to the field, since it moves beyond a binary "effective or not" conclusion toward an actionable parameter — treatment duration — that future intervention protocols, including any conducted in hospital settings, can be designed around.

Evidence Specific to Hospitalized and Clinically Vulnerable Populations

Evidence drawn from hospitalized or chronically ill populations specifically, while smaller in volume, is broadly consistent with the general adult findings. A systematic review and meta-analysis registered with PROSPERO (CRD42020138934) that restricted inclusion to hospitalized patients found significant pooled improvement in both anxiety (mean difference = -10.55, 95% CI [-19.97, -1.14]) and depression (mean difference = -2.43, 95% CI [-3.63, -1.24]) among patients receiving laughter therapy compared with standard care, drawing on 15 studies spanning hospitalized children and adults (Sobalvarro et al., 2023). Within a specific chronic-treatment population undergoing repeated long-term hospital visits, an open-label randomized trial among patients receiving hemodialysis found that humor therapy significantly reduced anxiety relative to a control group receiving standard dialysis care (Borzoe et al., 2022) — a finding of particular relevance given that hemodialysis patients, like long-term hospitalized inpatients, undergo repeated, extended clinical contact rather than a single acute encounter. Similarly, in long-term care hospital settings specifically, a quasi-experimental comparison found significantly greater improvement in depression and sleep among patients receiving a structured, twice-weekly laughter therapy protocol relative to a no-intervention comparison group (Han et al., 2017).

Mechanistic and Physiological Evidence

A parallel line of research has examined the physiological pathways underlying these psychological effects, offering a biological plausibility check on the behavioral findings above. A systematic review and meta-analysis of interventional studies evaluating spontaneous laughter's effect on cortisol levels found that laughter interventions were associated with significant reductions in this primary stress hormone (Kramer & Leitão, 2023), lending biological support to the hypothesis that laughter's psychological benefits operate at least partly through attenuation of

hypothalamic-pituitary-adrenal axis activity rather than purely through distraction or social engagement effects. This mechanistic evidence strengthens the theoretical case for humor therapy as more than a placebo-equivalent intervention, though it does not by itself establish that hormonal changes translate into clinically meaningful symptom reduction in every population studied.

Population and Format Heterogeneity, Including Non-Significant Findings

The literature is not uniformly positive, and a rigorous review must weigh disconfirming or mixed evidence alongside supportive findings. An integrative review spanning 29 studies and 2,964 participants across nine countries found that while most participants and studies reported humor therapy as effective for depression and anxiety, a minority of included studies found the effect to be statistically insignificant, and the review explicitly called for more high-quality studies before firmer conclusions could be drawn (Sun et al., 2023). At the level of individual trials, a randomized controlled trial of online laughter therapy among nursing students during the COVID-19 pandemic found significant reductions in depression, anxiety, stress, and loneliness in the intervention group relative to control (Ozturk & Tekkas-Kerman, 2022) — a positive result — whereas a separately conducted pilot randomized trial of remotely delivered laughter therapy for mothers found significant within-group improvement in both intervention and control conditions, with no statistically significant between-group difference (Ko & Park, 2023). Comparing these two studies directly illustrates that delivery format alone does not reliably predict outcome consistency; both were remote/online interventions, yet one produced a clear between-group effect and the other did not, suggesting that population-specific factors (student stress versus parental caregiving stress) or control-condition design (no intervention versus an active comparison activity) may moderate results as much as delivery mode itself.

Critical Appraisal of Methodological Quality

A consistent limitation across this body of literature is methodological quality. In the hospitalized-patient-specific systematic review, nine of the ten included randomized controlled trials were rated at high risk of bias, and the pooled anxiety outcome showed substantial heterogeneity ($I^2 = 84\%$), while the depression outcome showed none ($I^2 = 0\%$) (Sobalvarro et al., 2023) — an asymmetry suggesting that anxiety outcomes in this literature are measured or respond less consistently than depression outcomes, and that future studies should power and report these outcomes separately rather than treating "psychological distress" as a single undifferentiated construct. More broadly, across the general-population meta-analyses, heterogeneity in the 80–86% range was similarly common (van der Wal & Kok, 2019), indicating that pooled effect sizes across this literature should be interpreted as approximate signals of direction and general magnitude rather than precise, generalizable point estimates.

Synthesis and Identified Gap

Taken together, the literature converges on a moderate-to-large, biologically plausible, but methodologically uneven association between humor and laughter therapy and reduced anxiety and depression, with the most consistent support coming from longer-duration, in-person, structured interventions (Han et al., 2017; Liu et al., 2026; Sobalvarro et al., 2023) and comparatively weaker or inconsistent support from briefer or remotely delivered formats (Ko & Park, 2023; Ozturk & Tekkas-Kerman, 2022). Evidence specific to long-term hospitalized inpatients remains concentrated in East Asian and Middle Eastern clinical settings (Borzoe et al., 2022; Han et al., 2017), with no identified published synthesis examining this population within

an African clinical context. This regional and population-specific gap, rather than a general absence of evidence for humor therapy's efficacy, represents the most defensible and specific contribution this review — and any future empirical study built upon it — can make to the field.

Methodology

Design

This paper is a narrative literature review. No primary data were collected, and no patients, clinical records, or human subjects were involved at any stage. The design's purpose is to synthesize existing published evidence on the relationship between humor and laughter therapy and anxiety-depression outcomes in hospitalized and clinically vulnerable populations, rather than to generate new empirical findings.

Search Strategy

Relevant literature was identified through structured searches of academic and biomedical sources, including peer-reviewed journal databases and indexed academic search platforms, using combinations of the following keywords: *humor therapy*, *laughter therapy*, *laughter intervention*, *anxiety*, *depression*, *hospitalized patients*, *inpatients*, *long-term care*, and related terms. Searches were conducted iteratively during August 2026, with each round informed by gaps identified in the prior round. For example, searches were extended to specific clinical subpopulations — including hemodialysis and long-term care hospital patients — once it became evident that evidence specific to prolonged hospitalization was comparatively sparse within the general laughter therapy literature.

Inclusion Criteria

Sources were included if they met all of the following: (a) publication in a peer-reviewed journal; (b) reporting of original empirical data (randomized controlled trials or quasi-experimental studies), or a systematic or integrative synthesis of such data; and (c) examination of humor-, laughter-, or clown-based interventions in relation to anxiety, depression, or closely related psychological distress outcomes within a clinical, hospitalized, or institutionalized population. Sources addressing humor therapy exclusively in non-clinical contexts — for example, workplace humor or general wellbeing among healthy community samples — were deprioritized unless they offered relevant mechanistic or comparative value.

Synthesis Approach

Given the narrative rather than systematic design, findings were synthesized thematically rather than through formal meta-analytic pooling. Sources were organized around four recurring themes identified across the literature: (a) quantitative and meta-analytic evidence in general adult populations, (b) evidence specific to hospitalized and clinically vulnerable populations, (c) proposed physiological mechanisms, and (d) heterogeneity in intervention format and consistency of findings. Where an original source reported a meta-analysis, its pooled effect sizes and confidence intervals are reported directly and attributed accordingly, rather than recalculated.

Limitations of This Methodology

This review was conducted by a single reviewer, was not registered in advance with PROSPERO or an equivalent protocol registry, and did not follow the PRISMA reporting checklist in full. It is therefore appropriately classified as a narrative review rather than a systematic review, and its

conclusions should be read as a synthesis of the available literature rather than an exhaustive or bias-adjusted pooled estimate of effect. No formal risk-of-bias assessment was independently conducted on the primary studies discussed; where risk-of-bias findings are reported — for example, in the discussion of Sobalvarro et al. (2023) and van der Wal and Kok (2019) — these reflect the original authors' own assessments, cited rather than independently replicated.

Results

Characteristics of Included Literature

A total of 11 peer-reviewed sources met inclusion criteria for this review: 5 primary empirical intervention studies (randomized controlled trials or quasi-experimental designs; Borzoe et al., 2022; Ghodsbin et al., 2015; Han et al., 2017; Ko & Park, 2023; Ozturk & Tekkas-Kerman, 2022) and 6 syntheses in the form of meta-analyses, systematic reviews, or integrative reviews (Akimbekov & Razzaque, 2021; Kramer & Leitão, 2023; Sobalvarro et al., 2023; Stiwi & Rosendahl, 2022; Sun et al., 2023; van der Wal & Kok, 2019; Zhao et al., 2019). Collectively, the meta-analytic sources represent pooled data from well over 100 individual primary studies and several thousand participants across multiple countries, including South Korea, Iran, Turkey, China, and mixed international samples spanning nine countries in one review (Sun et al., 2023). No included source was conducted in an African clinical setting.

Table 1 *Primary Empirical Intervention Studies*

Study	Design	Population (N)	Intervention	Outcome Measure	Key Finding
Han et al. (2017)	Quasi-experimental, comparison group	Long-term care hospital residents (N = 42)	8 sessions, 40 min, twice weekly	Depression, sleep scales	Significantly greater improvement vs. comparison ($t = -7.12, p < .001$)
Ghodsbin et al. (2015)	RCT	Community-dwelling older adults	Laughter therapy program	General health, anxiety, insomnia measures	Significant reduction in anxiety and insomnia vs. control
Borzoe et al. (2022)	Open-label RCT	Hemodialysis patients (N = 63)	Humor sessions, twice weekly, 3 weeks	Anxiety scale	Significant anxiety reduction vs. control
Ozturk & Tekkas-Kerman (2022)	RCT	Nursing students (N = 61)	Online laughter therapy, twice weekly, 4 weeks	Depression, anxiety, stress, 4 loneliness scales	Significant reduction across all four outcomes vs. control
Ko & Park (2023)	Pilot RCT	Mothers under pandemic distress (N = 22)	4 virtual sessions, 2 weeks	Depression, anxiety, parental stress	Significant within-group improvement in both arms; no significant between-group

Study	Design	Population (N)	Intervention	Outcome Measure	Key Finding
					difference on depression/anxiety; unique reduction in parental stress in intervention group

Table 2 *Meta-Analyses, Systematic Reviews, and Integrative Reviews*

Study	Scope	Studies/Participants Pooled	Anxiety Effect	Depression Effect	Other Reported Effects
Zhao et al. (2019)	General adults	10 studies, N = 814	Significant reduction	Significant reduction; greater with longer intervention	Significant improvement in sleep quality
Sobalvarro et al. (2023)	Hospitalized patients (children + adults)	15 studies (10 RCT, 5 quasi-experimental)	MD = -10.55, 95% CI [-19.97, 1.14]	MD = -2.43, 95% CI [-3.63, -1.24]	9/10 RCTs rated high risk of bias
Stiwi & Rosendahl (2022)	Mixed somatic/mental health patients	45 RCTs, N = 2,547	Largest single-outcome effect (g = 0.98, 95% CI [0.45, 1.52])	Included in overall significant effect (g = 0.61, 95% CI [0.48, 1.00])	Physiological effect: g = 0.61; physical health effect: g = 0.59
van der Wal & Kok (2019)	Mixed clinical	Systematic review and meta-analysis of RCTs and quasi-experimental studies		Significant improvement	Simulated (non-humorous) laughter more effective than spontaneous laughter; overall study quality low, substantial risk of bias across all studies

Study	Scope	Studies/Participants Pooled	Anxiety Effect	Depression Effect	Other Reported Effects
Kramer & Leitão (2023)	Mixed populations	Interventional studies on cortisol	—	—	Significant cortisol reduction following laughter intervention
Sun et al. (2023)	Depression/anxiety across 9 countries	29 studies, N = 2,964	Majority positive	Majority positive	Minority of studies reported non-significant effect
Akimbekov & Razzaque (2021)	Mechanistic/theoretical	Narrative synthesis (not pooled)	—	—	Proposed endorphin, cortisol, and inflammatory-marker pathways

Pattern Across Results

Of the five primary empirical studies, four reported statistically significant between-group improvement in at least one anxiety or depression outcome (Borzoe et al., 2022; Ghodsbin et al., 2015; Han et al., 2017; Ozturk & Tekkas-Kerman, 2022), and one reported significant within-group but non-significant between-group improvement (Ko & Park, 2023). Of the six synthesis-level sources, all reported an overall positive directional effect of humor or laughter intervention on anxiety and/or depression, though effect sizes varied considerably (e.g., effect sizes ranging from approximately $g = 0.6$ to $g = 0.98$ across different pooled analyses; Stiwi & Rosendahl, 2022) and heterogeneity was frequently high where reported ($I^2 = 84\%$ for anxiety in Sobalvarro et al., 2023). Risk-of-bias or study-quality concerns were explicitly reported in two of the six synthesis-level sources — the majority of included randomized trials were rated at high risk of bias in Sobalvarro et al. (2023), and van der Wal and Kok (2019) similarly reported low overall study quality with substantial risk of bias across all included studies in their review.

Discussion

Interpreting the Overall Pattern

The body of literature reviewed here converges on a moderate-to-large, generally consistent association between humor and laughter therapy and reduced anxiety and depression symptoms across adult clinical and hospitalized populations. This is supported both at the level of individual primary studies (Borzoe et al., 2022; Ghodsbin et al., 2015; Han et al., 2017; Ozturk & Tekkas-Kerman, 2022) and at the level of pooled synthesis (Sobalvarro et al., 2023; Stiwi & Rosendahl, 2022; Zhao et al., 2019). The consistency of direction — nearly every included source reports improvement rather than no effect or harm — is itself informative: across differing populations, countries, and intervention formats, no study reviewed here found that humor or laughter therapy worsened anxiety or depression outcomes. This directional consistency, even amid variation in

effect size and statistical significance, supports the plausibility of humor therapy as a genuinely beneficial adjunct rather than an artifact of publication bias favoring a single research group or population.

Explaining the Effect: Mechanism as Support for Plausibility

The behavioral findings summarized above are strengthened by evidence of biological plausibility. Laughter has been linked to endorphin release and reductions in inflammatory markers such as IL-6 and TNF-alpha (Akimbekov & Razzaque, 2021), and a dedicated meta-analysis of interventional studies found that laughter significantly reduced cortisol levels, a primary marker of hypothalamic-pituitary-adrenal stress activation (Kramer & Leitão, 2023). Taken together with the behavioral outcome data, this suggests that humor therapy's psychological benefits are not merely a function of distraction or attention from clinical staff, but may operate through identifiable neuroendocrine and inflammatory pathways. This mechanistic grounding is a meaningful strength of the evidence base, since interventions with a plausible biological pathway are generally regarded as more credible candidates for clinical adoption than those supported by behavioral outcome data alone.

Reconciling Inconsistent Findings

Not every study reviewed found a significant between-group effect, and this inconsistency deserves direct interpretation rather than omission. Ko and Park (2023) found significant within-group improvement in both the laughter therapy and control conditions, with no significant between-group difference in depression or anxiety, although a unique reduction in parental stress was observed in the intervention group. Read alongside van der Wal and Kok's (2019) finding that overall study quality across the laughter-therapy literature was low, with substantial risk of bias across included studies, a plausible interpretation emerges: some of the pooled positive effects reported elsewhere in this literature may be inflated by weak study designs, while more rigorously controlled trials — such as Ko and Park's (2023) pilot RCT — may be revealing a more modest true effect once an active control condition and randomization are properly applied. This does not undermine the overall positive direction of the evidence, but it does suggest that effect sizes reported in lower-quality studies should be interpreted cautiously rather than taken as precise estimates of true clinical benefit.

Relevance to Long-Term Hospitalized Populations Specifically

The evidence most directly relevant to long-term hospitalized inpatients — as opposed to general adult or community populations — remains comparatively limited. Han et al.'s (2017) quasi-experimental study, conducted across two long-term care hospitals, remains the closest existing methodological analogue to the population of interest in this review, and its finding of significantly greater improvement in depression and sleep among patients receiving structured laughter therapy is encouraging. Similarly, Borzoe et al.'s (2022) trial among hemodialysis patients — a population that, like long-term hospitalized inpatients, undergoes repeated and extended clinical contact rather than a single acute encounter — found a significant reduction in anxiety following humor intervention. These two studies, though limited in number, suggest that the general positive effect observed across the broader adult literature likely extends to populations experiencing prolonged or repeated hospitalization, though this inference remains provisional given how few studies have directly tested this specific population.

Implications for Practice

If the pattern observed across this literature holds in long-term hospitalized settings more broadly, humor and laughter therapy represent a low-cost, low-risk, non-pharmacological option that hospital administrators and mental health practitioners could reasonably consider as a complementary intervention alongside standard psychological or pharmacological care (Akimbekov & Razzaque, 2021). The dose-related finding reported by Han et al. (2017), in which a structured multi-session protocol delivered over several weeks produced significant improvement, further suggests that sustained, structured implementation — rather than a single session — may be necessary to realize meaningful clinical benefit.

Limitations of the Existing Evidence Base

Several limitations temper how confidently these conclusions can be generalized. First, methodological quality remains a persistent concern: the majority of randomized trials included in the hospitalized-patient-specific systematic review were rated at high risk of bias (Sobalvarro et al., 2023), and van der Wal and Kok (2019) reported the same concern across their broader review. Second, geographic and cultural representation is narrow: the studies reviewed here were conducted predominantly in South Korea, Iran, Turkey, and other East Asian and Middle Eastern settings, with no identified study conducted in an African clinical context. Third, intervention protocols vary considerably in format, duration, and delivery mode across the reviewed studies, which limits the precision with which any single "recommended" humor therapy protocol can currently be specified for hospital adoption.

Limitations of This Review

As a narrative rather than systematic review, this synthesis did not involve independent risk-of-bias scoring, dual-reviewer screening, or PROSPERO pre-registration, and its conclusions should be read as an informed synthesis of currently available evidence rather than a formally pooled or bias-adjusted estimate of effect. The number of sources reviewed, while broader than the six sources initially drafted earlier in this process, remains modest relative to what a full systematic review addressing this specific population would require.

Conclusion

This narrative review synthesized existing peer-reviewed evidence on the relationship between humor and laughter therapy and anxiety-depression outcomes among hospitalized and clinically vulnerable populations. Across eleven reviewed sources — spanning primary randomized and quasi-experimental trials and pooled meta-analytic syntheses — the evidence consistently pointed toward a beneficial association, with no reviewed study reporting that humor or laughter therapy worsened psychological outcomes. This pattern held across diverse populations, including long-term care hospital residents (Han et al., 2017), hemodialysis patients (Borzoe et al., 2022), older adults (Ghodsbin et al., 2015), and general hospitalized adult and pediatric patients (Sobalvarro et al., 2023), and was reinforced by plausible underlying physiological mechanisms involving endorphin release, inflammatory marker reduction, and cortisol attenuation (Akimbekov & Razzaque, 2021; Kramer & Leitão, 2023). At the same time, the evidence base is not without important caveats. Effect sizes varied considerably across studies, heterogeneity was frequently high, and the majority of included randomized trials in the hospitalized-patient-specific synthesis were rated at high risk of bias (Sobalvarro et al., 2023), a concern echoed by van der Wal and Kok (2019) across the broader laughter-therapy literature. At least one rigorously controlled pilot trial

found no significant between-group effect despite significant within-group improvement (Ko & Park, 2023), underscoring that the field's overall positive direction should not be mistaken for uniform or guaranteed efficacy. Geographic representation across the reviewed literature was also narrow, concentrated primarily in East Asian, Middle Eastern, and other non-African clinical settings, with no identified study examining humor or laughter therapy specifically among long-term hospitalized inpatients within an African context.

Taken together, this review supports the conclusion that humor and laughter therapy represents a plausible, low-cost, low-risk, non-pharmacological adjunct with a reasonably strong — though methodologically uneven — evidence base for reducing anxiety and depression symptoms in hospitalized populations. The specific evidence gap concerning long-term hospitalized inpatients in African clinical settings remains unaddressed by the existing published literature and represents the clearest, most defensible direction for future inquiry to build upon. This review's own contribution lies in consolidating and critically appraising the currently available evidence, clarifying where it is strongest, and identifying precisely where it is thinnest — laying the groundwork for future researchers, rather than clinicians or institutions, to determine how that gap might eventually be addressed.

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