

Laughter interventions to improve psychological well-being/QoL in cancer patients: a mini systematic review

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Published Version

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(2024) Laughter interventions to improve psychological well-being/QoL in cancer patients: a mini systematic review. SAGE Open, 14 (4). ISSN 2158-2440 doi: 10.1177/21582440241300561 Available at <https://centaur.reading.ac.uk/120001/>

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To link to this article DOI: <http://dx.doi.org/10.1177/21582440241300561>

Publisher: Sage

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Laughter Interventions to Improve Psychological Well-Being/QoL in Cancer Patients: A Mini Systematic Review

SAGE Open
October-December 2024: 1–10
© The Author(s) 2024
DOI: 10.1177/21582440241300561
journals.sagepub.com/home/sgo
 Sage

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Abstract

Literature suggests that laughter interventions can positively influence psychological well-being and quality of life (QoL) in various populations, yet their efficacy among cancer patients remains underexplored. This mini systematic review aims to examine the cross-sectional associations between laughter/humor interventions and psychological wellbeing/Quality of life and synthesize the latest quantitative evidence regarding the effects of laughter interventions on the psychological wellbeing/Quality of life of cancer patients as well as the longitudinal relationships between interventions and outcome. A comprehensive search was conducted across electronic databases to identify relevant studies published from 2011 until 2022. Eligible studies were those examining the impact of laughter interventions on psychological well-being and Quality of Life in cancer patients. Five studies met the inclusion criteria and were included in the review. The findings indicate significant improvements in various psychological parameters following laughter interventions among cancer patients, including stress, depression, anxiety, overall Health Related Quality of Life (HRQoL), emotional well-being, Global Health Status & QoL, mental well-being, and positive mood. Moreover, the review highlights the synergistic effects of laughter when combined with other therapeutic elements. However, it was noted that laughter therapy did not demonstrate significant efficacy for moderate to severe depression among cancer patients. Longitudinal effects of laughter interventions on psychological well-being and QoL remain inconclusive. This systematic review underscores the beneficial effects of laughter interventions on the psychological well-being and QoL of cancer patients. It suggests the potential for multidisciplinary approaches, led by Health Psychology Practitioners, to develop and implement tailored laughter therapy programs for this population. Further research is warranted to elucidate the longitudinal effects and optimal delivery methods of laughter interventions in the context of cancer care.

Plain Language Summary

Laughter interventions to improve psychological well-being- A mini systematic review

Literature suggests that laughter interventions can positively influence psychological well-being and quality of life (QoL) in various populations, yet their efficacy among cancer patients remains underexplored. This mini systematic review aims to examine the cross-sectional associations between laughter/humor interventions and psychological wellbeing/Quality of life and synthesize the latest quantitative evidence regarding the effects of laughter interventions on the psychological wellbeing/Quality of life of cancer patients as well as the longitudinal relationships between interventions and outcome.

Keywords

laughter intervention, systematic review, cancer patients, psychological wellbeing, quality of life, QoL

Introduction

Plato, Aristotle, Kant, Descartes and Darwin are among the philosophers who spoke about the significant role of laughter in our lives (Paddington, 1963). In 400 AD, Miletus explained that the Greek word for laughter is

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“gelos” and its root is “hele” which means “health.” Diverse theories have approached laughter from different angles aiming to explain the mechanisms behind its effect on human behavior. The psychoanalytic theory on humor (Freud, 1928) suggested that laughter is a factor with a positive effect on the negative emotional behaviors. Positive Psychology aims to shift the focus from repairing the pathological ill health toward working for a better life while or after illness by inheriting a positive attitude (M. E. P. Seligman, 2002; M. E. Seligman et al., 2005). Hence, positive feelings may improve the physical, psychological and emotional well-being among patients with long-term conditions (LTCs). The behavioral imitation of simple and intentional positive activities practiced on a regular basis such as simulated laughter and counting blessings is a common technique applied in positive psychology interventions (Cohn & Fredrickson, 2010; Lyubomirsky & Layous, 2013).

Laughter can be spontaneous, simulated, stimulated, induced or pathological (Yim, 2016). Simulated laughter is self-induced while stimulated is induced by external humorous stimuli. Literature is rich in simulated and stimulated laughter interventions among both healthy individuals (Bennett et al., 2003; Bennett & Lengacher, 2006) as well as among patients with dementia (Takeda et al., 2010), depression (Ko & Youn, 2011) and diabetes (Bains et al., 2015). Improvement in quality of life (Cha & Hong, 2015; Ko & Youn, 2011) and stress levels is also evidenced. Research evidence suggests that laughter interventions had a significant beneficiary effect on patients’ mood and stress (Choi et al., 2010) QoL (Cho & Oh, 2011), anxiety (Han et al., 2011; You & Choi, 2012) among adults with cancer.

Laughter research is limited in cancer patients (Joshua et al., 2005) and most evidence comes from quantitative studies using self-reported measure outcomes. Thus, existing reviews have assessed latest studies from within the last decade among diverse population groups (Gonot-Schoupinsky & Garip, 2018; van der Wal & Kok, 2019). No laughter interventions reviews among cancer patients were found; a research gap that could be attributed to the limited existing literature on this population group.

This review gap in existing literature along with a personal painful experience following the loss of a close family member from lung cancer guided the reviewer’s interest on cancer patients. The reviewer suggests that there is a potential for health psychologists to design and implement simple laughter interventions that will be safe, low-cost and convenient (Hatzipapas et al., 2017; Zhao et al., 2019).

The impact of laughter may be of utmost significance for patients, services and the community while it may

Table 1. Review Protocol.

Elements to be included in the review
Background
Formulation of review question
Development of inclusion/exclusion criteria
Identification of research evidence
Data selection process
Data extraction process
Quality assessment of identified studies
Data synthesis

contribute to the patient-practitioner relationship (World Health Organization [WHO], 2021; Zhao et al., 2019). Existing literature reports no argument or controversy on the significance of laughter effect either on individuals. The need for improving and maintaining a positive psychological well-being and QoL is a common issue especially for patients with cancer; one of the most lethal health conditions in our modern world. This work summarized the latest quantitative laughter interventions and their effect on the psychological well-being/QoL in cancer patients. Due to limited resources (time restrictions) the author considered the mini review format compared to a more extended work. Thus, this paper is characterized by a limited time frame research and scope (Griffiths, 2002).

The findings of this mini systematic review will set the basis for formulating the intervention research question of a forthcoming laughter intervention that will be conducted by the reviewer. “What is the effect of laughter intervention on psychological wellbeing/QoL in patients with cancer?” is the research question. The main objective was to examine the cross-sectional associations between laughter/humor interventions and psychological wellbeing/QoL. The secondary objective was to examine the longitudinal relationships between interventions and outcome. The hypothesis was that the laughter interventions will be associated with greater psychological well-being and QoL in cancer patients.

Methods

A review protocol was developed to serve as a guide throughout the review process. The reviewer abided on this protocol which along with the inclusion/exclusion criteria allowed for the elimination of bias. A detailed briefing of all the included elements of the review protocol is presented in Table 1.

The research question was formed following the PICO frame (Higgins & Green, 2008) which was developed aiming to facilitate the formulation of highly feasible and answerable clinical research questions based on

Table 2. Detailed search criteria and keywords to be applied*.

Advanced search criteria In EBSCO	Limiters	Notes
TI (laugh or laughter or laughing) NOT (review of literature or literature review or meta-analysis or systematic review) AND TI (cancer patients or oncology patient s or patients with cancer)	Peer-reviewed articles in English language Full texts available in library From 2011 to 2022	Exact duplicates to be removed from the results

Table 3. Inclusion/Exclusion Criteria.

Inclusion/Exclusion Criteria	Inclusion	Exclusion
Population	Adult patients of any age, sex, country of residence/origin, type/stage of cancer	Cancer patients <18 years, healthy adults
Delivery mode/ setting	Any setting, for example, hospital, institution, privately and any delivery mode, for example, online, in-person	
Interventions	Simulated and/or stimulated laughter interventions published within the last decade and assessing the effect of laughter on psychological well-being/QoL	Non interventions
Comparison	Control	
Outcomes	Self-reported measures of health behavior, for example, survey Objective health behavior outcome measures	Measures of non-health behaviors
Study design	RCTs, quasi experimental, pilot	Observational, qualitative, anecdotal, case studies, reviews

the Problem/Population, Intervention, Comparison and Outcome (Huang et al., 2006). The search strategy involved an electronic advanced search EBSCO PsychINFO and PsychArticles databases aiming to identify all quantitative laughter interventions delivered in any setting (hospital, institution, privately) and delivery mode (online, in-person) among adults with no upper age limit worldwide with any type and at any stage of cancer. All peer-reviewed, full texts in English published between 2011 and 2021 were considered for inclusion aiming to evaluate studies applying the latest quantitative methods (Table 2).

All quantitative studies examining the effect of laughter on the psychological well-being/QoL in cancer patients were included and assessed for eligibility. Studies among adult populations with no upper age limit were considered as eligible aiming to capture a wider lifetime period of cancer patients. Qualitative studies and systematic reviews were excluded aiming to evaluate studies applying objective methodology. Anecdotal and case-studies were also excluded in order to focus on those with higher generalizability. The Inclusion/Exclusion Criteria are presented in detail in Table 3.

The data extraction process involved four consecutive phases: identification, screening, eligibility and inclusion aiming for the extraction of 5 eligible studies to be included in this mini systematic review. The search results were to be reported in a PRISMA flowchart

(Moher et al., 2009) and a customized data extraction sheet was generated to record the main characteristics of each included paper aiming to facilitate the direct comparison of different elements between the studies. The Newly Updated CASP Randomized Controlled Trials Checklist (Critical Appraisal Skills Program [CASP], 2020) was chosen to be applied as a Quality Assessment tool and a narrative synthesis would serve as a data synthesis outcome measure on the existing evidence from the 5 identified as eligible studies. The Template for Intervention Description and Replication (TIDieR) would assess the reporting quality of the selected interventions for their replicability and description accuracy in the Inclusion Phase (Hoffmann et al., 2014). A meta-analysis was not possible due the limited number of studies to be included in this review.

Results

A detailed schematic presentation of the search process and Outcomes is presented in the PRISMA flow chart (Figure 1). The search was conducted on 15/03/2021. The advanced search in EBSCO PsychINFO and PsychArticles electronic libraries identified 29 papers (Figure 1).

A total of 14 papers were screened following the duplicates removal; non quantitative ($n = 3$), anecdotal ($n = 1$), non-English ($n = 1$) and not available in full text

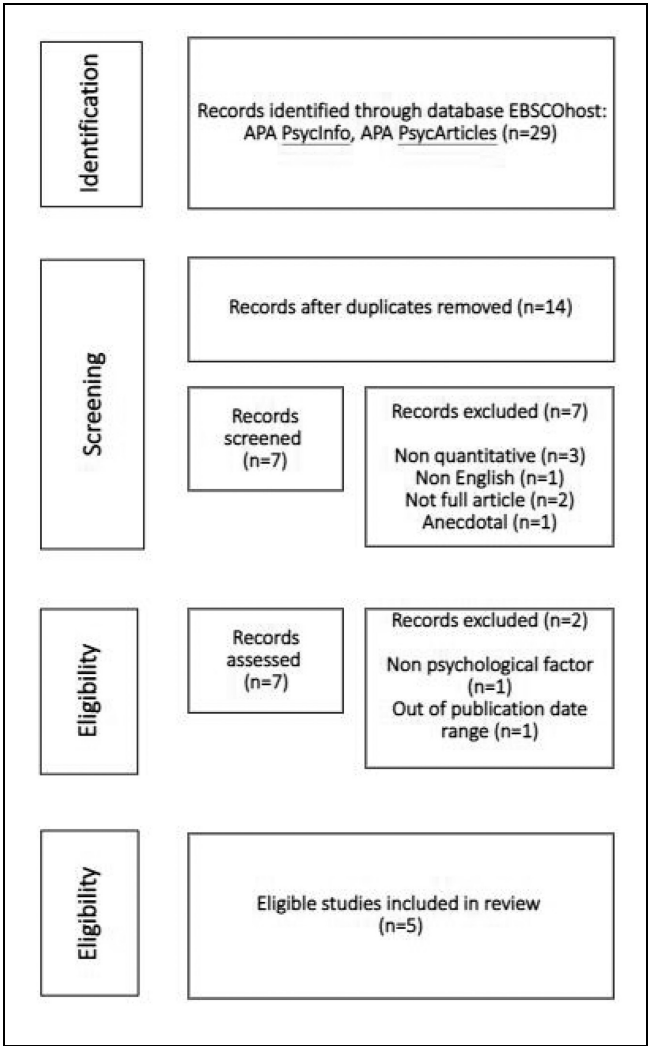


Figure 1. PRISMA flow chart of search result.

(*n* = 2) were excluded narrowing down the list in a total of 7 studies which passed for assessment to the Eligibility phase. One study examining the effect of laughter on a

non-psychological factor (*n* = 1) and one that was published before 2011 were considered as non-eligible for inclusion. A 10-year research limit was considered by the author as a rule of thumb for this work due to limited resources while allowed her to include the most recent papers and make the review manageable (Griffiths, 2002). Citations of the retrieved studies that rejected in each Assessment phase is presented in Supplemental Appendix A. Five studies were identified as eligible to be included in the review (Table 4).

Quality Assessment Outcomes

The Quality Appraisal assessment results showed that all five studies were sufficiently good in terms of their methodological quality and risk of bias. However, certain factors within all four sections affected the chosen papers to be evaluated as Satisfactory rather than as Key Papers. All studies were designed properly as RCTs although exclusions and withdrawals of participants were reported after randomization; a limitation that encompasses a low risk of bias or distortion of the final results. All studies were evaluated as methodologically sound although blinding was not applicable. The nature, design and methods used in designing a laughter intervention eliminate masking potentiality during implementation; neither single nor double-blinding. An intervention that requires for the experimental group to participate in a simulated laughter session discloses the identity of group allocation to the participants. All papers reported their results at a satisfactory level although only one paper reported the confidence intervals (CI; Morishima et al., 2019). Whether the benefits of each intervention outweigh the harms and costs could not be clearly stated as it is not addressed by the researchers and no information on any cost-effectiveness analysis is reported. Still, the positive effect of laughter on the psychological well-being and QoL that was reported in all studies may suggest that the benefits potentially outweigh the harms and costs. In

Table 4. Citations of Eligible Data to be Included in the Review (*n* = 5).

Citation
Farifteh, S., Kiamanesh, A., Mohammadi-Aria, A., & Mofid, B. (2014). The impact of laughter yoga on the stress of cancer patients before chemotherapy. <i>Iranian Journal of Cancer Prevention</i> , 7(4), 179–183. https://doi.org/10.1016/j.socscimed.2019.02.018
Kim, S. H., Kim, Y. H., & Kim, H. J. (2015). Laughter and Stress Relief in Cancer Patients: A Pilot Study. <i>Evidence-Based Complementary and Alternative Medicine : ECAM</i> , 2015, 864739. https://doi.org/10.1155/2015/864739
Lee, Y. J., Kim, M. A., & Park, H. -J. (2020). Effects of a laughter programme with entrainment music on stress, depression, and health-related quality of life among gynecological cancer patients. <i>Complementary Therapies in Clinical Practice</i> , 39, 101118. https://doi.org/10.1016/j.ctcp.2020.101118
Nia, M. N., Mohajer, S., Ghahramanzadeh, M., & Mazlom, S. R. (2019). Effect of laughter yoga on mental well-being of cancer patients undergoing chemotherapy. <i>Evidence Based Care Journal</i> , 9(3), 7–14. https://doi.org/10.22038/ebcj.2019.39928.2050
Morishima, T., Miyashiro, I., Sato, A., Inoue, N., Kitasaka, M., Akazawa, T., Higeno, A., Idota, A., Ohira, T., Sakon, M., & Matsuura, N. (2019). Effects of laughter therapy on quality of life in patients with cancer: An open-label, randomized controlled trial. <i>PLoS ONE</i> , 14(6), e0219065. https://doi.org/10.1371/journal.pone.0219065

Table 5. Quality Assessment Overview of Included Studies Using the CASP Randomized Controlled Trial Standard Checklist (see Supplemental Appendix C).

Section	# of Question	Farifteh	Kim	Lee	Morishima	Nia
A	1	✓	✓	✓	✓	✓
A	2	✓	✓	✓	✓	✓
A	3	✓	✓	✓	✓	✓
B	4a	x	x	x	x	x
	4b	x	x	x	x	x
	4c	x	x	x	x	x
B	5	✓	✓	✓	✓	✓
B	6	✓	✓	✓	✓	✓
C	7	✓	✓	✓	✓	✓
C	8	x	x	x	✓	x
C	9	?	?	?	?	?
D	10	✓	✓	✓	✓	✓
D	11	?	?	?	?	?

Notes. * : Yes; x: No; ?: Can't tell; For exact questions, see Supplemental Appendix C.

any case, more studies need to be conducted including a cost-effectiveness analysis before any decisions to be made.

The reviewer finds no similarity between the participants of the studies (cancer patients) and the population of the forthcoming laughter intervention (healthy participants) although the outcomes could potentially be equally beneficial to a healthy cohort. Whether the five experimental interventions provide greater value to the people in reviewer's care than any of the existing interventions remains unanswered. The Quality Assessment CASP Reports are presented for each study in Supplemental Appendix C. A summary of the CASP Checklists is presented in Table 5. An overview of the Quality Assessment outcomes is presented in Tables 6 and 7. The Template for Intervention Description and Replication (TIDieR) reporting showed adequate reporting quality, replicability and description accuracy of all the selected interventions (Hoffmann et al., 2014) allowing for replication (see Supplemental Appendix D).

Study Characteristics Outcomes

All studies share similar study designs, populations, intervention settings, delivery modes and outcome measures. Self-administered quantitative data were collected before and after the interventions and the comparison was achieved with control groups ($n = 5$). Most of the randomized controlled trials (RCTs) reported primary outcomes ($n = 3$); Morishima et al. (2019) assessed QoL as a secondary outcome in iOSACA trial (Y. J. Lee et al. (2020) was a pilot secondary analysis from a primary RCT study reporting secondary outcomes. Most of the studies have recruited both male and female cancer patients ($n = 3$).

Table 6. Overview of the Quality Assessment outcomes.

Study	CASP
Farifteh et al. (2014)	Satisfactory
Kim et al. (2015)	Satisfactory
Y. J. Lee et al. (2020)	Satisfactory
Morishima et al. (2019)	Satisfactory
Nia et al. (2019)	Satisfactory

Note. * Satisfactory: A satisfactory paper for inclusion in the mini systematic review.
(Dixon-Woods et al., 2007).

The effect of laughter was examined either alone ($n = 2$) or combined with another variable ($n = 3$). Methods included either humorous ($n = 1$) or non-humorous ($n = 4$) laughter stimuli. The study populations included only adult cancer patients. A detailed overview of the study characteristics is presented in Supplemental Appendix B.

Psychological Well-Being/QoL Outcomes

Results reported significant improvements in stress ($n = 3$), depression ($n = 2$), anxiety ($n = 1$), overall Health Related QoL (HRQoL; $n = 1$), emotional well-being ($n = 1$), Global Health Status & QoL ($n = 1$), mental well-being & positive mood ($n = 1$). Longitudinal relationships between interventions and outcome were not reported.

Farifteh et al. (2014) examined the effect of simulated laughter yoga on the perceived stress before chemotherapy. The researchers considered the effect of the intervention on certain covariant including among other psychophysical complaints and fear. The intervention was

Table 7. Positive Therapy With Laughter: Some “Happiness or Well-Being Exercises” of Practical Application in Medicine, Adapted from Mora Ripoll and Quintana Casado (2010).

Laughter table	Draw up a table with three columns and write down the names of all the people you care about in the first: family members, friends, workmates, etc. In the second column, rate their overall level of good humor, laughter, optimism or happiness, from 0 (minimum) to 10 (maximum). In the third, write down the reasons why. Re-read the table, choose those people with higher scores and compare them with yourself to identify areas for improvement and guidelines to follow.
Gratitude laughter	Gratitude is a personality trait closely associated with satisfaction in life and a subjective state of happiness. Think of a person who has been particularly good, generous, and helpful in difficult times, but whom you have not yet had the opportunity of thanking. Write a “letter of thanks” and describe in detail all the reasons why. If possible, personally deliver the letter, alternatively, send it send it by email or similar. After several days, try to meet or talk to the person. It is a very emotional and liberating experience.
The three good laughs	This exercise modifies attention and memory and provides a greater awareness of positive emotional states. Every night for a week, write down three good things that have happened in the day in a “diary.” Read them the next morning after getting up and, after finishing reading each one of the three, laugh out loud. After a week, continue the exercise as a daily routine, but without writing anything in the diary.
Laughter without borders	In the long run, helping others gives you more pleasure than seeking the satisfaction of personal pleasure. Personal pleasure is fleeting; love and concern for others remain. For a week, choose and perform something pleasant and enjoyable, one for yourself and another activity aimed at helping others, devoting equal time to each. Compare and contrast your feelings after each activity.
Gift of laughter	Plan a gift of spending time laughing with a loved one, and then give it to that person. It only involves doing something together or doing something for him/her, and spend as much time laughing as possible, without watching the clock. Just that.
Legacy of laughter	Imaging you are not long for this world. Write a letter in the third person (as if it were others talking about you), detailing in a realistic and moderate way how you want to be remembered and how you want your life to have been. Save the letter, then read it after a while (at least a year), and consider if it is still valid or should be rewritten because new laughs, accomplishments and goals have arisen.
My best laughs!	For at least 2 consecutive weeks, rate each day that passes from 0 (a terrible day) to 10 (a fantastic day). Write down the reasons why, and if good humor and laughter were present that day. At the end of the period, try to find patterns that identify bad days and good days, laughing days and non-laughing days, to develop a strategy to maximize the good days and minimize bad ones.
Reconciliation with the last laugh	On the sheet of paper, write down the most important and enjoyable events and positive experiences that occurred in the past. Every time in the future you are surprised by reproaching yourself for things you have not done, laughed about or managed in the past, re-read the text.
A dictionary of laughter	Taking the normal meaning of negative words and expressions, identify the most frequently used ones and give them a new affirmative and positive definition. For example, a “problem” in the new Directory of Laughter, could be re-defined as “a challenge to creativity.”
The laughter gym	Perform a series of simple exercises repeatedly and consecutively, which little by little will bring you a sense of joy, playfulness, fun and hilarity, so you can experience the physiological and psychological benefits of laughter. It consists of: a) breathing in and breathing out exercises and stretching, b) practising laughing unconditionally without any reason or by a deliberate rehearsal or release exercises, and c) mimic everyday activities or situations replacing movements and words with laughter.
The artistic laugh	Choose a picture, preferably of abstract art, and organize a group discussion concentrating on the personal interpretation that each makes of its meaning. While this involves both positive and negative personal choices, at the end highlight the favorable aspects and more positive emotions among the participants.

conducted and completed in a single 30-min session. The findings showed that yoga laughter may have a beneficial effect on psych-physical complaints, fear and reduce significantly overall stress in cancer patients. The researchers suggested a replication of their work using objective outcome measures including heart rhythm and pulse recordings along with self-administered questionnaires in order to diminish any potential effect of participants on the outcomes.

Similar results were reported another paper (Kim et al., 2015) examining the immediate effect of simulated laughter on stress, anxiety and depression among patients with breast cancer undergoing postoperative radiotherapy. This intervention was conducted twice weekly including four 1h duration sessions and the results showed significant reductions in all the three psychological health factors in the intervention group shortly after the first session compared with the control

group. As the study population was consisted only by female patients, the authors acknowledged a potential enhancing effect of homogeneity on the results and further research was suggested to assess the longitudinal effect of the outcomes.

A homogenous population is also seen in the quasi-experiment by Y. J. Lee et al. (2020) who examined the effect of simulated laughter with entrainment music on stress, depression and Health-Related QoL (HRQoL) in gynecological cancer patients. The intervention was completed in eight 1h duration sessions and reported significant improvements in all three assessed factors after intervention; stress, mild depression, overall HRQoL and emotional. Interestingly, the laughter intervention was not significantly effective for moderate/severe depression and further assessment of any determinants that may increase the effect in moderate/severe depression in cancer patients was suggested. The researchers suggested that the single-center design might limit the outcomes generalizability. However, such a drawback has a dual effect. As soon as one might argue that the outcomes cannot be taken into account due to the chosen study design, the criticism that a laughter intervention is effective only in mild cases diminishes suggesting the need for further research with a different study design that would allow for generalizability. The researchers acknowledged also a potential effect on the outcomes due to the combination of laughter with the entrainment music; as was proven difficult to conclude on the size effect of each variable separately suggesting further examination of laughter effect alone.

Morishima et al. (2019) added the humorous linguistic element in an open-label RCT to examine the effect of simulated laughter yoga along with verbal comedy on QoL among cancer patients. The intervention was completed in two phases; an initial and a cross-over phase consisting of four 60-min sessions per phase. A significant improvement in Global Health Status was found in the intervention group although the results were reported only for a short time eliminating any longitudinal effect. The researchers acknowledged a potential social desirability effect due to the open-label study design as well as a potential recall bias attributed to a response shift in the survey due to the cross-over part in the study design. QoL was assessed as a secondary endpoint of iOSACA trial (Akazawa et al., 2018) and the authors concluded that further research is needed to verify the outcomes.

One study examined the effect of simulated laughter yoga on mental well-being among cancer patients undergoing chemotherapy (Nia et al., 2019). The mental well-being and the positive mood were significantly increased (6%) while the positive energy and relationships were also improved at a significant extend. The intervention was consisted of 4 sessions conducted before chemotherapy

with a duration of 20 to 30 min. The researchers suggested further research with prolonged duration laughter yoga sessions to assess the accuracy of the outcomes.

Discussion

All the reviewed studies reported significant outcomes suggesting some robustness. This review revealed the beneficial health outcomes of laughter on diverse psychological well-being factors on cancer patients. Similar research has shown a decrease on depression, stress and anxiety among diverse populations such as elderly (Ghodsbin et al., 2015; K. I. Lee & Eun, 2011) or patients undergoing hemodialysis (Heo et al., 2016; Shin et al., 2010).

The beneficial effects of laughter when combined with other elements among cancer patients were also shown and they are in accordance with previous research suggesting the positive effect of laughter yoga on QoL or mood among cancer patients under chemotherapy (Dhruva et al., 2012; Dolgoff-Kaspar et al., 2012), humor therapy effect on QoL among breast cancer patients under radiotherapy (Rad et al., 2016), laughter with breathing exercises on QoL and mood (Heo et al., 2016), laughter therapy with music and exercise (Kuru & Kublay, 2017) laughter therapy with clowns on stress (Bacqué, 2010), laughter and stand-up comedy on psychological function (Yoshikawa et al., 2019) among different populations.

Two of the reviewed studies (Kim et al., 2015; Y. J. Lee et al., 2020) focused only on female patients with breast cancer and contributed with their positive findings showing both that laughter therapy may improve stress, anxiety and depression. Interestingly, research has shown that gynecological cancer patients might have an increased tendency to laugh (Ellis, 2006) resulting into a greater response tendency toward a laughter therapy program compared to men (Weisenberg et al., 1998); findings that suggest further research on homogeneity impact on outcomes.

Diverse cross-sectional associations between the interventions and the psychological wellbeing/QoL were identified but the longitudinal effect of these behavioral change outcomes and health benefits remains unclear. This can be attributed to the short duration sessions or the low number of sessions that was a common limitation between the reviewed studies. As the optimal duration and number of sessions is yet to be specified (Yoshikawa et al., 2019) further research with extended duration and multiple sessions is needed to assess and establish the accuracy of the effect and its exact mechanism.

A major finding showed that laughter therapy was not significantly effective for moderate/severe depression (Y. J. Lee et al., 2020). It could be argued that a simulated laughter therapy might be effective only in mild cases; an

evaluation that constitutes a laughter program as a secondary or supplementary treatment suggesting that different management might be considered that is, primarily a pharmacological approach for achieving higher effect on more severe cases. Critically, it can be challenging to differentiate between placebo and actual pharmacological effects on cancer patients (Ostuzzi et al., 2018) suggesting a potential utilization of a laughter program either as a first-line complementary treatment or as a supplementary element to main cancer management treatment schemes (van der Wal & Kok, 2019) against depression and stress).

Among the common limitation the studies share is the lack of any theoretical underpinning, follow-ups, cost-effectiveness analysis and objective outcome measures. Noteworthy, none was designed and/or implemented by a health psychologist while no information of a multidisciplinary research environment is reported. Considering the literature gap in assessing laughter effect on the psychological well-being/QoL in cancer patients and acknowledging that the design and implementation of health behavior interventions is the main research tool in Health Psychology, the significance and necessity of the knowledge, skills and overall contribution of Health Psychology Practitioners becomes more evident.

Conclusions/Recommendations

This mini systematic review showed the beneficial effects of laughter although its longitudinal effect remains unclear. The contribution of HP healthcare is major and health psychologists have the expertise to work with patients suffering from diverse long-term conditions and help them improve their psychological well-being and QoL.

Laughter therapy, also known as laughter yoga or laughter meditation, is a practice that harnesses the physical and psychological benefits of laughter for overall well-being. Some techniques commonly used in laughter therapy are (Bahari & Lorica, 2019; Mora-Ripoll, 2013; Mora Ripoll & Quintana Casado, 2010),

- a) **Laughter Exercises** consisting of structured activities designed to induce laughter. They may include playful exercises, such as pretending to laugh at a funny situation or engaging in silly behaviors.
- b) **Laughter Meditation:** Participants engage in deep breathing exercises while focusing on the sensation of laughter. This helps to promote relaxation and reduce stress.
- c) **Laughter Yoga:** Combining laughter exercises with yogic breathing techniques, this form of therapy encourages childlike playfulness and spontaneity.
- d) **Laughter Contests:** Participants compete to see who can laugh the longest or the loudest. This fosters a sense of camaraderie and encourages laughter as a social activity.
- e) **Laughter Journals:** Keeping a journal to record moments of laughter throughout the day can help individuals become more mindful of laughter and its positive effects.
- f) **Laughter Visualization:** Guided imagery techniques can help individuals imagine themselves in humorous or joyful situations, eliciting genuine laughter.
- g) **Laughter Affirmations:** Using positive affirmations related to laughter and joy can help individuals shift their mindset toward a more lighthearted perspective.
- h) **Laughter Rituals:** Incorporating laughter into daily routines, such as laughing during morning stretches or before meals, can help make laughter a habit.
- i) **Laughter Clubs:** Joining a laughter club or group provides opportunities to laugh in a supportive and social environment, fostering a sense of community and connection.
- j) **Laughter Breathing:** This technique involves taking deep breaths while laughing, which helps to increase oxygen flow to the brain and body, promoting relaxation and stress relief.

The exercises for well-being that may be provided in positive therapy with laughing, both individually and in groups, are displayed in the table below. These exercises can be readily included into regular clinical practice as an alternative or supplemental treatment. Creating an emotional environment that encourages savoring and flow, encouraging change through the collaborative creation of new perspectives, languages, and discourse, the simultaneous presence of multiple communication channels and relation formats (laughter, humor, verbal and nonverbal language, art, music, dance, pairs, groups, etc.), and having an optimistic outlook on the future, which gives one the drive to act, interact, communicate, and dream in new ways are some of the factors that may contribute to its success (Mora Ripoll & Quintana Casado, 2010). Some of these techniques are:

Future implications include the setup of multidisciplinary work teams led by Health Psychology Practitioners to design and implement successful laughter therapy programs/interventions for cancer patients.

Acknowledgments

I would like to thank Sana Ahmed for proof reading the article; and most importantly, my beloved husband, Dinos Kokkinos, for the inspiration and his support.



Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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Data Statement

Research data are available at References and in-text.

Supplemental Material

Supplemental material for this article is available online.

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