Dear reviewer,

We greatly appreciate your professional and careful review of our article. Your thoughtful insights have highlighted several areas in need of improvement. Thanks to your valuable suggestions, we have diligently revised our manuscript. The changes made in the revised manuscript are highlighted in yellow, and please find our response written in blue to the comments as detailed below:

1. Abstract:

Inclusion of Key Variables: Mention the key variables or factors that were assessed during the interventions. This would provide readers with a better understanding of the study's scope.

Response: Thank you for your suggestion. We are sorry that the key variables were not precisely presented in the abstract. We have revised the objective of this review in the abstract as follows:

Objective: (1) To evaluate the effectiveness of life review and reminiscence therapy in enhancing the quality of life and life satisfaction among older adults. (2) To discover the efficacious variables during interventions, such as form of intervention and number of sessions. (line 11-14)

1. Introduction

(1) Clarity and Conciseness: Consider organizing the introductory sentences to flow more smoothly and logically, making it easier for readers to follow the narrative.
(2) Objective Clarity:While the introduction mentions the objective, it could be made more explicit. Clearly state the main research question or hypothesis that the study aims to address. This will help readers understand the specific focus of the research.
(3) Rationale and Gap Identification: The introduction mentions the conflicting findings regarding the effectiveness of life review and reminiscence therapy, which is crucial. However, it would be helpful to explicitly state that these discrepancies create a research gap that this study intends to address.
(4) Structure and Flow: Consider restructuring the introduction to create a more logical flow. Start with a concise presentation of the aging population statistics, move on to the concept of active aging, and then introduce the role of psychological interventions, specifically life review and reminiscence therapy. This can provide a smoother transition to the research objective.

Response: We appreciate your endorsement and detailed comments. A careful rewriting and reconstruction of the introduction has been conducted for the revised paper according to your valuable comments. According to your suggestions, we paid more attention to explaining our objective more precisely and organizing our introduction more smoothly, as follows:

Introduction

With life expectancy increasing, the proportion of individuals aged 60 and over is growing faster pace compared to any other age group. By the year 2030, it is forecast that approximately one-sixth of the global population, will be individuals aged 60 years or older; by 2050, the global population of individuals aged 60 years and older will have doubled, reaching a count of 2.1

billion [1]. Therefore, ageing is becoming an inevitable global demand that requires more effective solutions across various living settings. In 2002, the World Health Organization adopted "active aging" as a response to the challenges posed by population aging [2]. As a multidimensional concept, active ageing is evaluated using a combination of objective and subjective indicators [3]. This process aims to optimize opportunities for health, participation, and security to enhance the quality of life as people age [2]. Consequently, as a state of being, quality of life would be a fitting objective indicator for assessing active ageing. Moreover, life satisfaction, as a fundamental dimension of subjective well-being, is evaluated from both the experience of pleasure and contentment with one's own life. Thus, would be an appropriate subjective indicator to assess the process of active ageing [4].

As individuals progress in age, the connection between psychological states and health grows increasingly significant [5]. In order to enhance the positive psychological functions of older adults, a range of psychological interventions has been extensively implemented across various living environments. After Robert Butler [6] initially introduced the concept of life review and reminiscence as tools to help older adults comprehend their current circumstances by establishing connections with past experiences, life review and reminiscence therapy were developed and are currently widely employed as interventions in the care of older adults across various illnesses and settings, including nursing homes and hospitals [7]. Because of the sharing of theoretical foundations, the name of life review and reminiscence therapy are frequently employed interchangeably in interventions. Consequently, the synthesis of evidence from life review and reminiscence therapy among older adults assumes particular significance [8].

Up until now, as non-pharmacological interventions with minimal side effects and cost-effective, a range of studies have supported the effectiveness of life review and reminiscence therapy in treating various psychological problems [9, 10]. In a Bayesian network meta-analysis, the findings indicated that life review emerges as the best-ranked intervention for relieving anxiety and distress in an inpatient palliative care setting compared to three other short-term psychological interventions (cognitive behavioral therapy; mindfulness intervention; action control group) [11]. Moreover, another meta-analysis supports the idea that reminiscence therapy effectively improves cognitive function and alleviates depression in people with dementia ($p < 0.001$) [12].

However, the positive psychological outcomes associated with life review and reminiscence therapy lack of consistent conclusions. A meta-analysis including 22 studies and 1972 participants revealed no statistically significant effect of reminiscence therapy on quality of life ($p = 0.16$) [13]. Moreover, the other meta-analysis indicated no significant difference in the observed improvement in life satisfaction between the life review group and the control group ($p = 0.14$) [14]. Recently, two systematic reviews have concluded that reminiscence therapy is effective in improving quality of life and life satisfaction of the elderly in the community or older adults with intact cognition and mild cognitive impairment [15, 16]. Nevertheless, the living environments and health statuses of older adults vary significantly. Therefore, there is an urgent need for a comprehensive quantitative assessment of intervention effectiveness, considering the varied living conditions of older adults and their diverse health statuses.

In summary, a lack of consistent findings regarding the efficacy of life review and reminiscence therapy in different settings in positive psychological outcomes exists, potentially impeding the optimal allocation of care resources. Consequently, to promote the process of active ageing, the objectives of this meta-analysis are to evaluate the effectiveness of life review and reminiscence therapy on the quality of life and life satisfaction of older adults, while also discovering the potential efficacious variables related to the settings.

(line 29-88)

A reference has been added as follows:

8. Haber D. Life review: implementation, theory, research, and therapy. *International journal of aging & human development* **2006**, 63(2), 153–171. https://doi.org/10.2190/DA9G-RHK5-N9JP-T6CC

2. Method

(1) Search Strategy:

The inclusion of eight databases for the systematic literature search enhances the comprehensiveness of the review. However, it would be helpful to briefly mention the specific time frame of the search, such as the years considered for inclusion.

Response: Thank you for your suggestion. To make our search frame more specific and our description clearer, we added the establishment year of each database as follows:

We conducted a systematic literature search on 17th March 2023 across eight databases, including Web of Science, EBSCO, Embase, The Cochrane Library, ProQuest Dissertations & Thesis Global, WANFANG, VIP, and CNKI (the latter three were used for Chinese studies), which were established in 1997, 1944, 1988, 1993, 1743, 1993, 2000 and 1999 accordingly. There were no restrictions regarding the publication date. (line 94-99)

(2) Inclusion and Exclusion Criteria:

The inclusion and exclusion criteria are clearly defined, making it easy to understand which studies were considered for inclusion. However, it would be beneficial to mention the rationale behind certain criteria, such as why studies with participants aged 55 and above were selected.

Response: Thank you very much for your advice. Previous studies have had varying standards for age ranges in older adults and have not distinguished between nuanced age groups. Most relevant studies' older adult population during the pre-research procedure is above 55 years. Thus, to make the results of our study more comprehensive and to reduce the risk of bias, participants aged 55 and above were selected.

(3) Data Extraction:

The process of data extraction is well-described. It includes details on how data were coded and handled when discrepancies arose. However, it would be helpful to mention any specific variables that were extracted, such as primary outcomes or demographic data.

Response: We appreciate your feedback. We agree that it is necessary to provide specific data for the readers. We have written the specific variables in our manuscript as follows:

Studies were coded on methodological characteristics, including first author, year of publication, country, age, the proportion of females, sample size, health condition, intervention details (e.g., intervention types and intervention conductors), the frequency and duration of each intervention session, the length of the intervention given, the post-intervention follow-up period, and outcomes. If the article data contains SE, the formula ($SE = SD / \sqrt{n}$) was used to convert the data to SD. (line 127-133)

(4) Quality Assessment:

The use of the Cochrane risk-of-bias tool (RoB2) for assessing the risk of bias in included articles is appropriate. However, it might be beneficial to briefly explain the key domains assessed by RoB2 (randomization process, intervention deviation, etc.) for readers who may not be familiar with the tool.

Response: Thank you for your kind suggestion. Brief explanations of key domains would help readers better understand RoB2. So we have written a brief introduction for each domain of ROB2 in our manuscript as follows, and the reference we cited could provide more information for the readers to check:

The risk of bias in the included articles was assessed by two reviewers (QZ and CC) according to the criteria recommended by the Cochrane Handbook using the Cochrane risk-of-bias tool (RoB2) [19]. This tool assesses bias arising from (1) the randomization process (including random sequence generation and allocation sequence concealment); (2) intervention deviation (blinding of participants and personnel); (3) missing outcome data (risk of bias of the data and results calculation); (4) measurement of outcomes (risk of bias of the assessment methods); and (5) selection of results (risk of bias in selection of the reported result). (line 136-143)

19. Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, et al. Cochrane Handbook for Systematic Reviews of Interventions version 6 (updated July 2019). Available online: http://www.training.cochrane.org/handbook (accessed on 13 March 2023).

3. Results

Clarity and Consistency: Ensure consistent formatting of results, including effect size format (e.g., SMD 1.07) and confidence intervals (e.g., 95% CI 0.48 to 1.66).

Response: Thank you for your kind reminder. We have carefully checked the formatting of the results and ensured consistency in our reporting.

4. Discussion

(1) Long-Term Effects:

The mention of the limited evaluation of the long-term impact of life review and reminiscence therapy on quality of life is valuable. However, it would be beneficial to briefly discuss the potential reasons for this limitation, such as the lack of long-term follow-up data in the included studies or the challenges of assessing sustained effects over time.

Response: We appreciate your feedback. It would be insightful to engage in a brief discussion regarding the potential reasons for the absence of the evaluation of long-term effects on quality of life among older adults. We have changed the relevant sentence as follows:

Acquiring a sufficient amount of follow-up data for research involving older adults poses a challenge. Consequently, due to the limited number of studies and the wide range of time periods

employed, the studies included did not evaluate the long-term impact of life review and reminiscence therapy on quality of life. (line 306-310)

(2) Heterogeneity and Outliers:

The acknowledgment of a high level of heterogeneity and the identification of outliers in certain studies are important. Discussing potential reasons for this heterogeneity, such as differences in intervention protocols, participant characteristics, or measurement tools, would enhance the discussion's depth.

Response: Thank you for your insightful comments. We have added a brief discussion about the potential reasons for the high level of heterogeneity in the manuscript as follows:

In conclusion, as previously elucidated, the differences in study design or measurement tools may contribute to the heterogeneity observed in the analysis of the results. (line 332-334)

(3) Variability in Outcome Concept:

The discussion mentions the multifaceted nature of quality of life and the different measurement tools used. To strengthen this point, you could provide specific examples of how variations in measurement tools might have influenced the results or interpretations.

Response: Thank you very much for your suggestion. Based on the different definitions of quality of life, we have reviewed the relevant literature and added a description of different scales applying to different populations as follows:

Moreover, the variation in the results could be attributed to different interpretations of the outcome concept. Quality of life is a multifaceted variable, leading to different definitions and consequently varied measurement tools [52]. Because of the diversity of cultural backgrounds and social customs across various countries and regions, the applicability of a single scale to all situations is not feasible [53]. For instance, while the SF-36 is a widely used health-related survey [54], more suitable for elderly people in the community, the WHOQOL-100 places greater emphasis on individuals' subjective perceptions of their life circumstances within the culture and values that shape their existence [55], mainly used for patients with Alzheimer's disease and cancer. In conclusion, as previously elucidated, the differences in study design or measurement tools may contribute to the heterogeneity observed in the analysis of the results. (line 323-334)

A reference has been added as follows:

53. Yang TB & Zhang JH. Study on Measurement and Evaluation of Quality of Life of the Elderly. *Chinese Journal of Gerontology* **2004**, 24(4), 384-385. https://doi.org/10.3969/j.issn.1005-9202.2004.04.057

(4) Implications for Future Studies:

The discussion regarding subgroup analyses related to intervention settings and duration is informative. However, it would be beneficial to discuss the practical implications of these findings for researchers and healthcare providers. For example, how can these insights guide the design of future interventions or clinical practices?

Response: Thanks for the advice. We agree that it would be beneficial to provide the practical implications regarding subgroup analyses in the discussion. A sentence has been rewritten as follows:

Therefore, in future studies, it is advisable to initiate the assessment of cognitive function, followed by tailoring the form of the intervention based on cognitive level. For example, individual forms of life review or reminiscence therapy may be efficacious for older adults whose cognitive abilities have experienced decline. (line 344-348)

(5) Ethical Considerations:

The mention of potential risks of bias related to informed consent and experimental intent is important. Expanding on this point by discussing ethical considerations when working with older adults in research, particularly those with cognitive impairments, would add depth to the discussion.

Response: Thank you for your valuable suggestions. We have added a discussion about the risk of bias related to informed consent and experimental intent as follows:

Firstly, due to the methodological constraints inherent in a systematic review and meta-analysis, there are some unavoidable risks of bias. These biases are attributed to factors such as language restrictions, issues related to informed consent, or experimental intent, especially when working with older adults with cognitive impairments. (line 372-376)

(6) Mechanisms and Study Design:

The discussion alludes to the need for more rigorous study designs and the importance of reporting comprehensive study design details. Expanding on this by suggesting specific improvements in study design, such as blinding or randomization procedures, would be valuable.

Response: We appreciate your suggestions. We have written the suggestion of future study design on our manuscript as follows:

Thus, future research should employ more rigorous study designs, with an emphasis on blinded outcome evaluation and allocation concealment. (line 356-358)

(7) Strengths and Limitations:

The discussion section effectively highlights both the strengths and limitations of the study. To enhance this section, you could briefly discuss how the study's focus on improving positive emotions aligns with the broader goals of active aging and overall well-being.

Response: Thanks for the advice. We have rewritten the sentence about the strengths of our research as follows:

Previous research has shown that quality of life and life satisfaction serve as robust predictors of an individual's health. Furthermore, fostering a positive attitude has been linked to enhanced physical and mental well-being [59]. Meanwhile, the study's emphasis on enhancing these positive psychological functions is congruent with the objectives of active ageing, potentially empowering older individuals in their pursuit of holistic well-being [3, 60]. (line 366-372)

(8) Language Limitation:

When discussing the limitation of including only English and Chinese studies, you may consider mentioning that language restrictions are common in systematic reviews and meta-analyses due to practical constraints.

Response: We appreciate your suggestions. We have rewritten the sentence on our manuscript as follows:

Firstly, due to the methodological constraints inherent in a systematic review and meta-analysis, there are some unavoidable risks of bias. These biases are attributed to factors such as language restrictions, issues related to informed consent, or experimental intent, especially when working with older adults with cognitive impairments. (line 373-377)

(9) Future Research Directions:

While you touch upon the need for more high-quality studies in the future, you could provide specific recommendations for future research directions in the field of life review and reminiscence therapy, such as exploring potential moderators or mediators of treatment effects.

Response: Thanks for the advice. We have rewritten the sentence about the future research directions on our manuscript as follows:

Thus, future research should employ more rigorous study designs, with an emphasis on blinded outcome evaluation and allocation concealment. Additionally, a limited number of variables were available for applications in subgroup analyses, as many studies lacked full details regarding the intervention design. As a result, it is helpful to discuss the mechanisms that underlie the effectiveness of the intervention if future studies report the comprehensive study design, such as the implementer and the detailed intervention plan for each session. (line 356-362)

We sincerely thank your careful and professional review of our manuscript. We tried our best to improve the manuscript and made the changes as you suggested. We would be glad to respond to any further questions and comments that you may have. Thank you again for your insightful comments to improve the quality of our research.

Thank you and best regards.