

Factors Affecting Quality of Life of an Elderly Person: A Systematic Review and Meta Analysis

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ABSTRACT

Background: Elderly people have been observed to experience a highly vulnerable quality of life from every aspect. Various factors, such as diet, physical health, monetary conditions, family situation, and others, affect the quality of older people. However, it has still not been analyzed which factor affects the quality of life in a negative direction and vice versa. The purpose of this research study is to perform a meta-analysis to identify the factors and the levels to which these factors affect QoL among elderly people. **Methods:** A secondary design has been followed to conduct the research study. Meta-analysis was the chosen method to conduct the research. Statistical analysis was performed to find out the factors affecting the life quality of elderly people. Authentic and open-access databases were selected for the review. Moreover, English-published recent research papers (2019-2023) were selected for the review. All other papers were excluded from the review. The study included 8 articles. **Results:** The results have shown that the specific factors include exercise, diet, nutrition, community, physician, and pharmacist care for elderly people, which affect the QoL. However, it has been observed that the nutrition effect on QoL was statistically significant, as the *p* value was found to be less than 0.05 (< 0.000001). The other factors were observed to be non-statistically significant but had biological validity. **Conclusion:** On a concluding note, it can be said that the research study has addressed the aim and study objectives. The nutrition factors effects have more effect on the QoL of patients.

Keywords: Diet; Elderly People; Nutrition; Pharmacist Care; Physical Activity; Physical Exercise; Quality of Life

INTRODUCTION

Ageing is a natural process that can neither be stopped nor reversed. As individuals age, their lives go through several transformation processes. Quality of life (QoL) has been observed to include psychological, social, biological, and environmental factors. The QoL experienced by the elderly people has been observed to include their overall wellbeing as well as satisfaction. The specific process of aging has been observed to involve decline in bodily functions such as movement, mobilization, and the ability to lift, eat, and bathe. These abilities decline in older people due to a decrease in muscle mass and bone density, as well as sensory functioning. Moreover, these specific transformations have been noticed to affect the post-retirement lives of older people also. Research evidence has been obtained for the psychological challenges that specifically contribute to reduced life quality, affecting the emotional self-esteem of an individual (Bidzan-Bluma *et al.*, 2020). The same has been noted to affect their ability to cope with stressing factors.

As viewed from evidence, it can be said that the social factors are associated with a considerable influence on the QoL of elderly people (Bidzan-Bluma *et al.*, 2020). The support systems are mainly obtained from society as well as the family. However, in older ages, there are possibilities of ignorance of elderly people by the society (Kasar & Karaman, 2021). This ignorance has been noticed to lead to social isolation among the elderly

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population. On an additional basis, it can be said that the overall availability of healthcare services and the quality of services also contribute to the wellbeing of an elderly individual. Thus, till now, the evidence pieces have shown both positive and negative factors affecting elderly persons quality of life. There is a lessening in physical, mental, and social circumstances that cooperate with one another, causing reliance on others (Mayasari *et al.*, 2022). However, none of the factors were associated with the surrounding environment in which the elderly person lives.

Environmental factors also affect the QoL among elderly people. This has been observed to include housing conditions, neighbourhood friendliness and safety, and proper access to basic amenities and recreational spaces, which contribute to the overall wellbeing of the elderly. A supportive and comfortable living environment can enhance the sense of security as well as satisfaction among the elderly, which will further increase their quality of life. A research study has provided evidence on the fact that community engagement and participation among elderly adults is required to improve the mental and physical wellbeing of elderly people (Norman, Hab & Pirlich, 2021). Along with community and environment-oriented factors, cultural and social attitudes towards aging have been observed to shape the QoL in elderly people. There are also some financial considerations that affect the QoL among elderly people. Economic instability and boredom after retirement have been observed to deeply impact the mental health of elderly people (Crocker *et al.*, 2019). Lack of monetary support can lead to extreme stress among elderly people, which can give rise to physical health disorders as well (Makovski *et al.*, 2019). Discrimination towards aging has also been observed to cause severe mental health problems among elderly people. Therefore, it can be stated that almost every area of the selected research topic has been explored by primary research studies. Both qualitative and quantitative research studies have been performed in this current research in order to find out the factors affecting QoL among elderly people.

Therefore, it can be stated that there are several factors that influence health-related QoL. These factors include reduced life expectancy, disability, social isolation, chronic pain, and higher dependency on caregivers. These factors increase the chances of health practitioners playing a major role in the lives of elderly people. However, the role of practitioners is also affected by the social determinants of health, or SDH (Norman, Hab & Pirlich, 2021). These determinants are associated with the factors affecting the QoL. The factors include the places where people live, work, learn, and survive based on several risks and outcomes (Kasar & Karaman, 2021). However, there are other important factors also that include quality and nature of close relationships, religion, cultural influences, personal values, and previous experiences with healthcare facilities (Phyo *et al.*, 2020). However, it can be stated that the QoL factors cannot be predicted properly, and some factors might also not have the overall anticipated effects. Thus, a requirement of factors affecting QoL of the patient's analysis is justified.

However, a gap exists in the selected design based on which the previous studies were conducted. The previous research studies were based on primary designs and systematic literature review designs. None of the previous studies were based on secondary quantitative research designs to explore the level to which every identified factor affects the life quality of elderly people. Moreover, it can be stated that this gap in previous research works was targeted to be filled by the current research.

The purpose of this research study is to perform a meta-analysis to identify the factors and the levels to which these factors affect QoL among elderly people.

The study objectives are as follows:

- To categorize the factors that positively affect the QoL of older people. Positive effects promote the QoL of older people.
- To categorize the factors that negatively affect the QoL of older people. Negative effects reduce the QoL of older people.

The aging process impacts older people's quality of life (QoL) because it is an inevitable natural transition that impacts many aspects of life. Quality of Life (QoL) is a multifaceted concept that includes biological, social, psychological, and environmental aspects. Diminished physical skills are the consequence of

physiological changes imposed due to aging, such as decreasing muscle mass and sensory functioning (Phyo *et al.*, 2020). Mental health issues, such as anxiety and depression, have an impact on emotional health. Social isolation and happiness in general are influenced by social factors, such as attitudes in society and support networks. Environmental factors are important, and they include things like community involvement and housing circumstances (Norman, Hab & Pirlich, 2021). QoL is further shaped by prejudice, cultural views, and financial concerns. In order to close a gap in earlier research approaches dominated by primary and literature review designs, this thorough examination requires a meta-analysis to classify and evaluate the influence of these characteristics on the quality of life of older adults. The goal of this research is to add to the body of knowledge already available on senior well-being by providing a detailed understanding of the positive and negative aspects impacting quality of life.

METHODOLOGY

Eligibility Criteria

Study types: Only randomized controlled trials or cohorts (primary studies) were considered for the research. All other study design-based research papers were excluded from the study types for selection. Therefore, primary studies relevant for the meta-analysis were collected for the research.

Study Inclusion Criteria and Exclusion Criteria

Only journal-published research papers were selected for the research study. English-published research studies were included for the research study. Papers that were published between 2019 and 2023 were selected in order to select recent data. On the other hand, papers were not selected if published in some other language apart from English. The papers were not selected if published before 2019. Older papers were thus excluded to avoid the usage of obsolete data in the analysis.

Participants and Type of Intervention

The participants were elderly people

Search Strategy

The selected keywords were stated in the appendices section of the research study. Moreover, the keywords selected are also stated here: “elderly” AND “quality of life” AND “people” AND “factors”. Synonyms of these keywords (“aged, “individual, “Element”) were selected for this search process and were searched after separating with the OR BOOLEAN operator. The present research study was performed using a secondary quantitative design. The selected databases were PubMed and Google Scholar. Additional research papers were found by searching the reference list of individual relevant research papers selected from the search results.

The research question was developed using a Population Exposure Outcome (PEO) framework.

P: Elderly people

E: Factors affecting QoL

O: Improved or Deteriorated QoL

Study Selection

Only primary research design-based research papers were selected for the analysis purposes. On the other hand, studies based on secondary design were excluded from analysis. Studies talking of elderly QoL-associated factors were only selected. Chosen designs included either RCT or Cohort for meta-analysis. Since this was secondary quantitative research, secondary research papers were not selected for the research data analysis.

Data Extraction

The only sources of data used in this study were PubMed and Google Scholar. Out of 200 articles, only 8

were found to be relevant for the current research paper. Particularly from the investigations connected to the main study design, quantitative data was gathered. These kinds of data were mostly gathered from the study results that were mostly chosen for the publication. In order to do the analysis, the entire collection of data was especially loaded into the RevMan program (Shrestha *et al.*, 2019). The most recent offline data analysis Review Manager version 5.3. A number of statistical data values were gathered, including the mean and standard deviation (SD). The author has also been effective in gathering all the necessary data on the study's features. Quality analysis of the collected data was performed by using the Critical Appraisal Skills Programme tool. This tool has been mostly used for analysing the quality of every primary research study selected for review purposes in secondary studies (Phyo *et al.*, 2020). The table has been shown in the results section of the current research study.

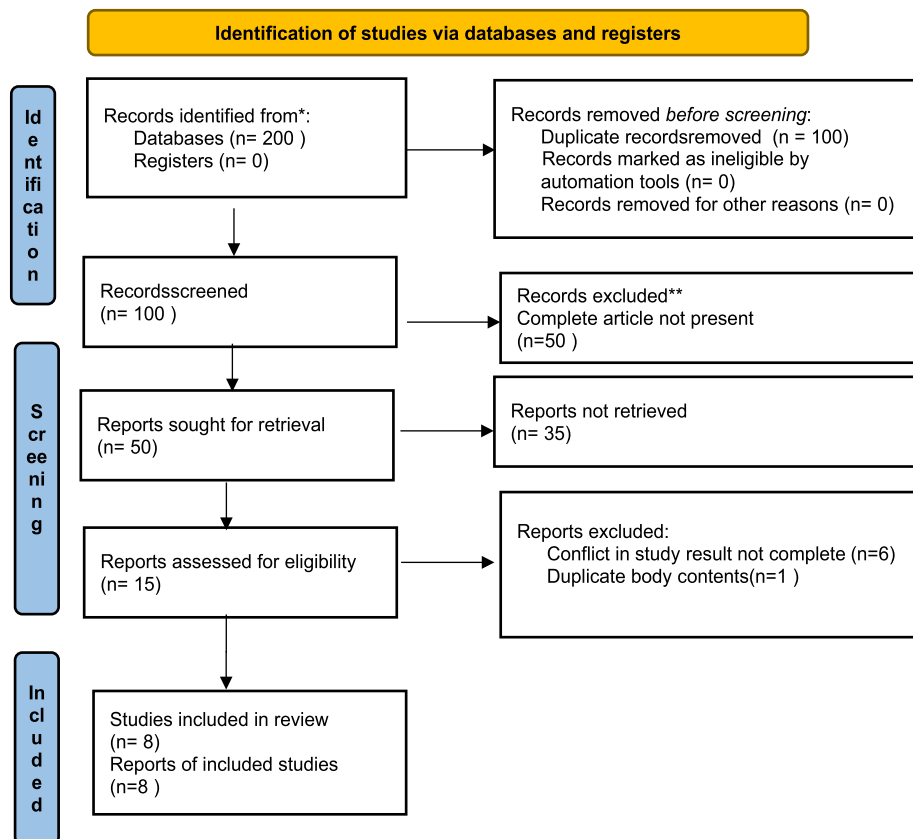
Data Synthesis

Specifically, the RevMan tool was used to perform statistical analysis on the quantitative data. Using the RevMan program, data analysis was done to find out the factors affecting the QoL of the elderly people, and a forest plot was created. The impact size for the meta-analysis was calculated using the random effects model using RevMan's data analysis. The primary outcome measures were obtained by calculating the Weighted Mean Difference (WMD) or even the Standardized Mean Difference (SMD) between the control and intervention groups.

RESULTS

The work began with a study characteristics table, followed by a meta-analysis section discussing the Forest plot, and finally concluded with a statistical interpretation and summary section.

PRISMA Search Results



Source: (PRISMA)

Figure 1: PRISMA Flowchart

Table 1: List of Rejected Articles

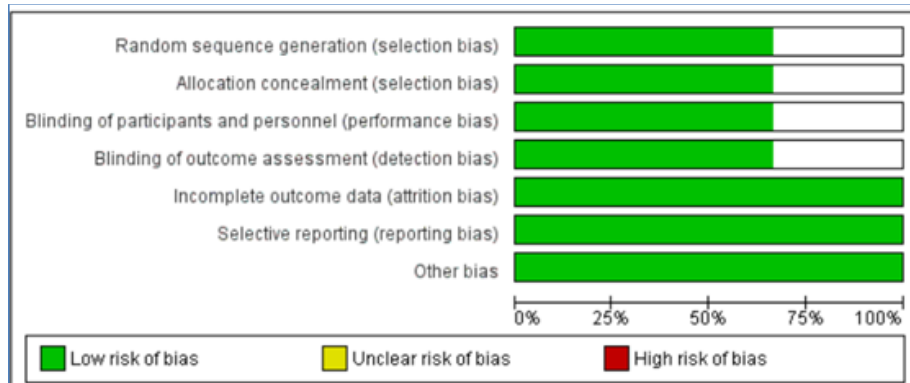
Slot Number	Article Name	Link	Reason of Exclusion
1	Factors Affecting Quality of Life and Longevity in the Elderly People in Phrae City, Thailand	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7544013/	Qualitative research
2	Factors influencing quality of life of elderly people with dementia and care implications: A systematic review	https://www.sciencedirect.com/science/article/abs/pii/S0167494316300735	Systematic review
3	Factors affecting quality of life of older persons – a qualitative study from Bhubaneswar, India	https://www.researchgate.net/profile/Brajabal-lav-Kar/publication/322020540_Factors_affecting_quality_of_life_of_older_persons-a_qualitative_study_from_Bhubaneswar_India/links/5a3dd558a6fdcce197ff979d/Factors-affecting-quality-of-life-of-older-persons-a-qualitative-study-from-Bhubaneswar-India.pdf	Qualitative research
4	Quality of Life and its Related Factors among Elderly People	https://jech.umsha.ac.ir/Article/A-10-659-2	Qualitative research
5	Sociodemographic Factors Affecting the Quality of Life of Elderly Persons Attending the General Outpatient Clinics of a Tertiary Hospital, South-South Nigeria	https://journals.lww.com/nimj/fulltext/2017/58040/sociodemographic_factors_affecting_the_quality_of.3.aspx	Target population patients
6	Determinants of Quality of Life in the Elderly	https://cejnm.osu.cz/pdfs/cjn/2016/03/05.pdf	Qualitative research

Like this, 185 other articles were excluded because of non-matching contents, abstract, and duplicate nature.

Table 2: Characteristics of the Studies Included in the Analysis

Author	Study design	Participants	Setting	Factors affecting quality of life	Specific life factor affected	Follow-up	Results
Mura et al. (2014)	Randomized controlled trial	People above 65 years of age	Community	Different kinds of exercise	Overall physical and mental health	No	Vigorous physical activity program were beneficial in improving physical health of elderly people especially their posture. Absence of depressive symptoms were also observed when elderly people were active in exercising on a regular basis.
Shokouhi et al. (2019)	Randomized controlled trial	People at or over 60 years of age	Hospital	Oral health	Oral and gastric health	Yes	Education was effective in improving oral health of elderly people. Oral health was effective in reducing physical health problems followed by less pain and psychosocial problems associated with age. In this way QoL was maintained among the elderly people.

Schulz <i>et al.</i> (2020)	Randomized controlled trial	Mean age is 74 years of age	Hospital	Pharmacist and physician care	Heart condition	Yes	Elderly people who were affected by heart failure and were in the recovery phase, experienced better quality of life when physicians and pharmacists were efficient in addressing the patient needs. Improvements in both physical and emotional dimensions were observed to be higher in elderly people who were well cared by physicians and pharmacists.
Marcos-Pardo <i>et al.</i> (2019)	Randomized controlled trial	People of 65 to 75 years of age	Community	Resistance circuit training	Fat mass, functional capacity, muscle strength of elderly people	Yes	Moderate to high intensity resistance training exercises have been shown to increase total body mass in terms of lean muscles. This activity improved the functional capacity and increased overall muscular strength in elderly people. Therefore, exercise was effective in improving QoL of elderly people in terms of muscular strength in both men and women.
Fan <i>et al.</i> (2020)	Randomized controlled trial	People of age more than 65.	Hospital	Mind body exercise	Sleep quality	Yes	Effective and feasible approach was Baduanjin (mind body exercise) in improving sleep quality. However, it did not significantly increase the QoL in community dwelling elderly men and women, who were affected by sleep disturbances.
von Berens <i>et al.</i> (2018)	Randomized controlled trial	Elderly people	Community	Exercise + nutritious diet	Physical health and mental health (QoL)	Yes	The research stud has been observed to demonstrate that the six month intervention based on diet was effective in improving the positive effects on mental status – QoL.
Uster <i>et al.</i> (2013)	Randomized controlled trial	Above 60 years people	Hospital	Healthy diet	Quality of Life	Yes	Nutritional intervention was effective in increasing the overall protein and fiber content in the body of elderly people. This improved their physical health and in turn affected the QoL in a positive way. Thus, it can be stated that the results indicate that
Kunvik <i>et al.</i> (2021)	Randomized controlled trial	Elderly people	Community	Nutritious diet	Physical health (Quality of Life)	Yes	Nutritional modifications in diet by increasing protein and calcium, had beneficial effects on improving the physical functioning of elderly people. Thus, it can be said that nutritional modifications helps in enhancing the quality of life among elderly people.

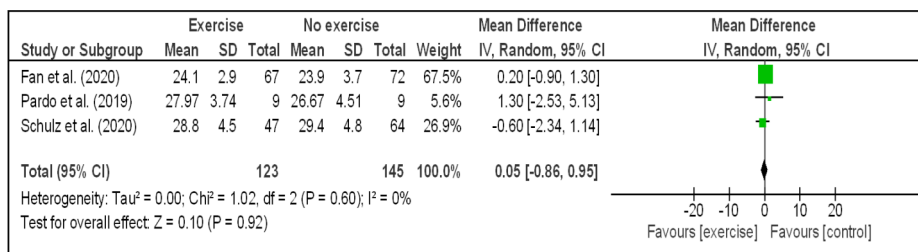


Source: (RevMan 5.3)

Figure 2: Graphical Representation of Risk of Bias

Meta-Analysis

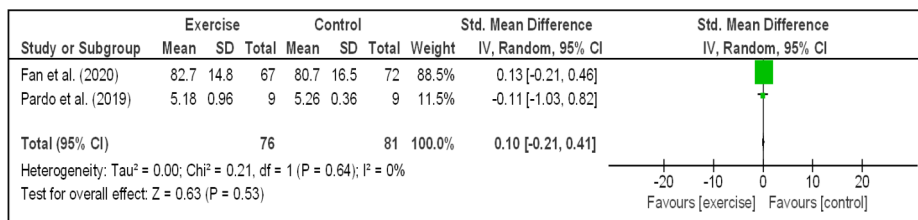
The risk of biased graphical representation has been shown in the above graphical representation. A low risk of bias was observed to be associated with the research studies. The bias that has been considered are selection bias, performance bias, detection bias, attrition bias, and reporting bias.



Source: (RevMan)

Figure 3: Effect of Exercise on BMI of Elderly People

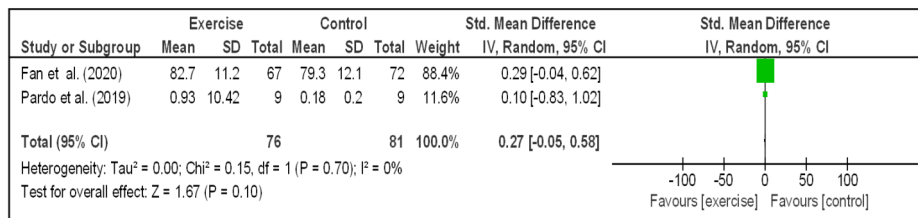
Forest plot showing the effect of exercise as a factor affecting the BMI of elderly people, which in turn is associated with QoL.



Source: (RevMan)

Figure 4: Effect of Exercise on QoL (Quality of Life among Elderly People)

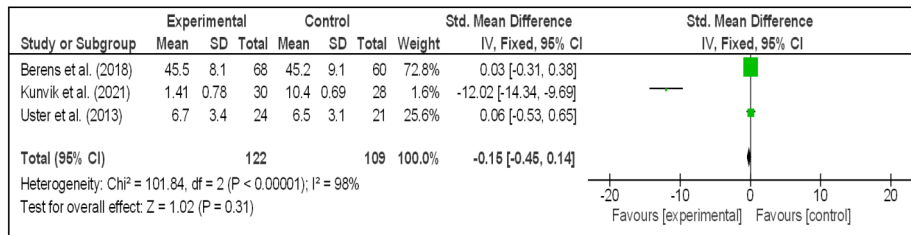
Forest plot showing the exercise as a factor and its effect on the physical health of elderly people.



Source: (RevMan)

Figure 5: Effect of Exercise in Improving Mental Health of Elderly People

Forest plot showing that exercise is a factor that affects the mental health of elderly people, in turn affecting their life quality.



Source: (RevMan)

Figure 5: Effect of Nutrition or Diet on Improving QoL of Elderly People

Forest plot showing that nutritious diet helps in improving the QoL of elderly people.

Statistical Interpretation

The forest plot in Fig. 2 has shown that exercise leads to a reduction in the BMI of elderly people. However, the level of reduction varies with age and the extent to which they can perform the exercise. Heterogeneity was zero for this forest plot analysis. On the other hand, the observed chi square value was 1.02, which was less than the theoretical value of 0.352 at 95% CI proves that the observed values are very near to the expected values, and there was not much difference. However, the *P* value was higher than 0.05, and therefore the results cannot be stated to be statistically significant. In the second forest plot for Fig. 3, it has been observed that exercise improves the quality of life among elderly people. Here also, heterogeneity was zero and the observed chi square value was more than the theoretical value. Therefore, it can be said that the positive effect of exercise on QoL among elderly people is not statistically significant. The third forest plot in Fig. 4 has been observed to talk about the effect of exercise on improving the mental health of elderly people. This forest plot has also provided a statistically insignificant relationship, where it has been observed that exercise improves the mental health of elderly people. The observed Chi square value is, however, more than the theoretical value. However, it did not affect the results due to zero heterogeneity and a statistically significant relationship. The final forest plot in Fig. 5 has shown the effect of nutrition or diet on the improvement of QoL among elderly people. Here, the *P* value was again found to be less than 0.05 (< 0.000001); therefore, a statistically significant relationship was again observed. Thus, biologically, a nutritious diet has been observed to have positive effects on the QoL of elderly people and is also statistically significant.

Factors Affecting the QoL among Elderly People

Research studies by Mura *et al.* (2014), Shokouhi *et al.* (2019), and others have shown that physical exercise is an important factor that impacts the quality of life (QoL) of older adults. Exercise has advantages for mental health in addition to its effects on general physical health. The same has been observed to improve posture, ease discomfort, and lessen psychological problems, all of which contribute to a higher standard of living. According to Shokouhi *et al.* (2019), oral health has a significant impact on older people's quality of life. Good oral health habits, such as maintenance and being aware of the oral problems, help to lower age-related psychological and physical health problems and preserve a greater quality of life. The need for efficient medical care is emphasized by Schulz *et al.* (2020), especially when heart problems exist. When elderly people with heart failure received care from qualified doctors and pharmacists that addressed both physical and emotional aspects, their quality of life (QoL) improved. Research by Uster *et al.* (2013), Kunvik *et al.* (2021), and von Berens *et al.* (2018) has shown that nutritional treatments have a favorable effect on quality of life (QoL). An appropriate and complete diet enhances physical well-being, increases muscle mass, and improves functional ability—all of which together enhance the overall standard of living for senior citizens. Mind-body practices such as Baduanjin are introduced by Fan *et al.* (2020) as a factor affecting the quality of sleep. These exercises address specific problems, such as problems with sleep, and therefore contribute to a deeper understanding of elements impacting well-being, even though they may not significantly improve general quality of life.

The study has successfully identified the factors affecting QoL among elderly people. The study has also identified the level to which the identified factors affect the life quality of elderly people. The identified factors included exercise, sleep patterns, diet, physician care, and overall mental health condition.

DISCUSSION

The QoL of elderly people was observed to be associated with the impact of healthcare services, mental health, and psychological factors affecting mental health. These factors were affected by several external factors that included diet, exercise, community and health support. The findings of the current review have shown importance of physical activity on the improvement of QoL among elderly people. The same findings were reported by another research study (Belkacem *et al.*, 2020). On the other hand, the findings of the current research have shown that increased resistance and strength training-based exercises can lead to poor health outcomes due to injuries in elderly people. This has been reported by a point on the forest plot for the impact of strength training on physical health and quality of life. This has been reported in Suzuki *et al.* (2020), where several risks of exercise among elderly people have been discussed. In other words, it can be stated that although exercise is a factor that positively influences the QoL among elderly people, it can also negatively affect the health outcomes of the people. Moreover, it has been observed that physical exercise fails to improve health outcomes in cancer patients as well. This means that the cancer patients might not be in a state to carry out the exercise, and therefore, resistance training can lead to deterioration of health. The same has been reported in another research study, and therefore this finding can be stated to be justified (Cunningham *et al.*, 2020). Thus, on a summarizing note, it can be said that exercises have both positive and negative effects on the QoL of elderly people.

Following exercise, it has been observed that good physicians or family care can support the QoL of elderly people. This finding has been reported in another research study and therefore can be stated to be justified (Pieh, Budimir & Probst, 2020). On the other hand, good physician care and healthcare services are important for the physical and mental health quality maintenance of elderly people. Moreover, it has been observed that the findings of this review have also reported that pharmacists also have a major role to play in ensuring a good QoL experience for elderly people. The role of pharmacists in the lives of elderly people has been observed to be of utmost importance since they are the chemists, druggists, and medicine suppliers, significant for the survival of an elderly patient. This importance of pharmacists has been reported in another research study and can be stated to be justified (McGuine *et al.*, 2021). However, the current review has failed to identify the role of a family as a major factor affecting the QoL of elderly patients. This is because of the absence of enough primary studies on this topic. Although the same should be included in future studies to fill this gap.

Nutrition and diet have been observed to be two specific secondary factors that affect the QoL of elderly people. This effect on QoL has been observed to be in both a positive and negative manner. According to the findings of the current research review, it can be said that highly nutritious diets have a positive impact on the lives of elderly people. This finding has been found to be similar to another research study where the relationship between nutritious diet and prevention of chronic diseases among elderly adults was discussed (Sivaramakrishnan *et al.*, 2019). Therefore, it can be said that this specific research finding is also justified for the current research study. In other words, it has also been stated that lack of a proper and balanced diet increases the risk of chronic disease occurrences in adults. This increase has been observed to result in the negative effects of diet on QoL of elderly people.

Limitations

Meta-analysis and systematic review have limitations, including potential publication bias, where only significant studies are published, leading to skewed results. The quality of life included in the studies may vary, affecting the overall findings. Additionally, the process is time-consuming and requires comprehensive search strategies that might still miss relevant studies. The reliance on existing data means that meta-analyses and systematic reviews cannot account for unmeasured confounders or the context of individual studies, potentially limiting the applicability of the results.

CONCLUSION

The review has provided several non-specific findings, which need further exploration in future studies. To be more specific, a significant observation that could be obtained is that depression and nursing dependence were established in this research to be predictor variables of QoL. Therefore, this tends to also explain the fact that physical exercise, diet, pharmacists, physicians and communities are the major factors affecting the QoL of elderly people. Proper implementation of significantly appropriate diagnosis and treatment by nurturing an atmosphere that is inclusive in nature should be the primary focus of the nurse. That could only be achieved by enabling the elderly individuals to actively participate in decision-making, as this will augment their independence. As a matter of fact, the paper has been successful in highlighting the importance of training that should be given to all the relevant health care providers in the process of diagnosing depression in older people. In addition to its impact on overall physical health, exercise provides mental health benefits. The same thing has been shown to improve posture, alleviate pain, and reduce psychological issues, all of which led to a greater level of living.

Therefore this particular study has been significantly successful in amplifying the scholarly knowledge by extensively inspecting the QoL of older people. This review has further discussed the understanding that healthcare procedures, psychological factors, and choices about lifestyle all tend to have a multidimensional influence on the quality of life of the elderly. Also, on the other hand, in connection with the development of targeted treatments to boost a greater quality of life in the aging population, it is critical to recognize and take into consideration all the factors that have already been mentioned above. Thorough understanding of the issues relating to factors that tend to impact the physical and mental health of older people has been extensively researched in this paper with the implementation of relevant tools. Also, probable recommendations have also been planted throughout this research paper, which makes this piece an extensively important source of information for readers and further studies aligning to this area of research.

No research is entirely immaculate or inclusive of all possible aspects. Based on this statement, citing the limitations of the research tends to imitate honesty and transparency. Also, it enables the reader to understand that an individual has an overall extensive understanding of the topic that is being discussed. It should be confessed that since the sample size that has been implemented in this study is tentatively small, from certain angles it gets extremely challenging to bring correlation between the applied data. Also, the review is primarily focused on a certain age group; few factors get blocked from being implemented. A larger than necessary sample will be more representative of the population and hence yield more accurate results. As a matter of fact, the paper has been successful in highlighting the importance of training that should be given to all the relevant health care providers in the process of diagnosing depression in older people. In addition to its impact on overall physical health, exercise provides mental health benefits.

Conflict of Interest

The authors declare that they have no competing interests.

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