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Financial Challenges in Music and Dance-Based Interventions for Older Adults: A Systematic Review

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Abstract

Older adults can benefit from the addition of music and dance-based programs to their care. Music and dance-based interventions are a diverse approach to address the unique needs of older people. However, aged care centre and older people are less willing to put in money for such programs. This paper examines the financial issues that surround the provision of music and dance-based interventions for older adults. A systematic search of literature retrieval on Scopus Elsevier, data extraction, and study selection were carried out. After conducting a systematic search on Scopus Elsevier, this paper retrieved 512 publications. Then, after a meticulous screening process and only five publications were suitable for analysis. Thematic analysis categorized into music and dance-based interventions for discussion. Developing and sustaining music and dance-based care programs for older people requires financial resources, such as investment and funding coverage. Dance-based interventions offer potential

benefits for older adults, such as improving participation and motivation for rehabilitation in older adults, while music-based intervention helps ease cognitive and neuropsychiatric symptoms in dementia patients.

Keywords: financial, mental health, music and dance-based interventions, older adult, systematic review

Introduction

Introducing music and dance-based programs as an integral part of aged care holds immense potential for enhancing the overall quality of care provided to older adults. By incorporating purposeful music-based treatments into the caregiving process, facilitated by qualified caregivers, music and dance-based programs offers a multifaceted approach to address the unique needs and challenges faced by older individuals. Vaajoki et al. (2022) and Paolantonio et al. (2022) shed light on the profound impact of music-based interventions on older adults in aged care settings. It has been found to contribute significantly to the general well-being of individuals, promoting a sense of joy, relaxation, and overall emotional balance. Moreover, the therapeutic use of music has demonstrated its efficacy in reducing anxiety and depressive symptoms among older adults, providing them with a means to express and process their emotions in a nonverbal and comforting manner. This article also shows how professionals in the music and dance industry could collaborate with those in the medical profession, in a cost-effective way. The music and dance professionals could apply their skills, deepen their impact, and contribute to the holistic well-being of older adults.

One of the remarkable benefits of music and dance-based program is its positive influence on cognitive functioning. Studies conducted by Bleibel et al. (2023), Berkovic et al. (2023), and Yao et al. (2023) have revealed that engaging in music-related activities can enhance cognitive performance, including memory recall, attention, and executive functioning. The rhythmic and melodic elements of music have been shown to stimulate neural pathways, promoting neuroplasticity and maintaining cognitive vitality in older adults. Furthermore, music and dance-based program fosters social interaction and a sense of community among older adults. By participating in group musical activities or engaging in shared musical experiences, individuals are provided with opportunities to connect with others, form meaningful relationships, and combat social isolation (Berkovic et al., 2023). This social aspect of music and dance-based program has proven particularly valuable in aged care settings, where loneliness and social disconnection can be prevalent.

As caregivers and researchers continue to explore its potential and refine its practices, music and dance-based program stands as a compelling intervention, enriching the lives of older adults and fostering a holistic approach to aged care. Yet, getting people to invest in these musical interventions is challenging. A plethora of factors come into play, including the intricate interplay between the cost of the intervention, and the fluctuating willingness of individuals to allocate funds for such services. The cost of such intervention varies on factors such as the specific type of intervention, session frequency, therapist expertise, and the individual's willingness to invest financially. For example, individual music-based intervention sessions led by professionals can range from USD50[1] to USD100 per hour, while group sessions, although typically more cost-effective, still require a significant financial commitment (American Music Therapy Association, 2018).

Then, there is the hesitancy and uncertainty among individuals when it comes to bearing the financial burden associated with such therapy (Lauw, 2016). This reluctance stems from a multitude of factors, including a limited understanding of the therapeutic merits offered by music-based intervention, the perception of the intervention as a costly endeavour, and the deeply ingrained notion that music is an art form that should inherently be freely accessible to all (Lee et al., 2022). Thus, navigating the financial challenges in the realm of musical interventions are a timely endeavour. Therefore, the objective of this study is to review the literature that discusses financial issues that surround the provision of music and dance-based intervention for older people. This study also reviews the literature on financial issues faced by caregivers in the deployment of caregiving through music care modules and interventions. Dance and music-based intervention offer promising interventions for enhancing

[1] At the moment, no data is found on music therapist charges in Ringgit Malaysia. Therefore, more research should be done including interviews with local Malaysian music therapists especially those registered with Malaysian Music Therapy Association to gauge on the prices for such services.

well-being in older adults. The authors examine studies on the use of dance-based intervention, social dancing, music-based intervention, and music listening interventions for older adults at risk for dementia, with Parkinson's disease, and experiencing sleep difficulties.

In the next sections, the authors present the method of literature retrieval, followed by the results and discussion section where the findings are presented from three different aspects: types of music and dance-based interventions and their benefits, types of intervention and the financial challenges of these music and dance-based interventions. Next, the implications for future research, limitations and conclusion are presented.

Methods

The research objective was formulated by referring the CIMO model[i] (Booth et al., 2021). An extensive investigation was conducted using the Scopus Elsevier database. In order to minimize any potential bias caused by the databases' regular updates, the search was performed on a specific day. More precisely, the literature retrieval from each database took place on May 19, 2023. The search query consisted of the keywords "financial," "music*," "danc*," "sing*," "therap*," "intervention*," "treatment*," "care," and "elder*." The search was conducted using the 'TITLE-ABS-KEY' string. The resulting publications were then subjected to a screening process. Only English-language, research and review articles that were pertinent to the topic of interest were included, while articles that did not meet the specified inclusion criteria were disregarded. The exported records were then imported into Zotero v.6.0.26 for hand screening and removing duplicates. Simultaneously, the data extraction and study selection were carried out by two of the authors Consensus was reached to resolve disagreements or to submit them to the third review author.

Results and Discussion

Overall, a comprehensive exploration in the Scopus database spanning from November 1977 to May 2023 yielded a total of 512 publications. Following a meticulous screening process, only five publications were deemed suitable for analysis. Out of these, two duplicates and thirty-one publications of other types were eliminated from consideration. Figure 1 and Table 1 reflects the adapted PRISMA search flow (Page et al., 2021), and the title of included articles respectively. Table 2 depict the characteristic of included articles. Table 2 classifies the studies into two categories: dance and music. The dance and music interventions were done in the following ways. The dance intervention incorporates exercises that allow for progression and flexibility as a tool for fall prevention. Another dance intervention is the social ballroom dancing intervention It can improve coordination, balance, and flexibility, while also promoting social interaction and enjoyment. A treadmill walking-to-music intervention was also used in one study. This combines walking on a treadmill with music for motivation and rhythmic guidance. It can improve cardiovascular health and potentially enhance mood. Another intervention focused on Adapted Tango. This dance routine is said to improve mobility, provide community support, allows individuals with balance impairments to participate and improves creativity. Another study used active music-based intervention delivered by a trained music therapist, this intervention uses singing to familiar or favourite songs, playing musical instruments and listening to songs It can improve cognition and dementia. Finally, one study explores music listening Interventions: These studies explored the impact of different music genres, such as Western classical, Chinese classical, New Age, and Jazz, on sleep quality in older adults. These music were soft, instrumental, slow music without any lyrics. This musical composition was found to promote relaxation and lowers anxiety.

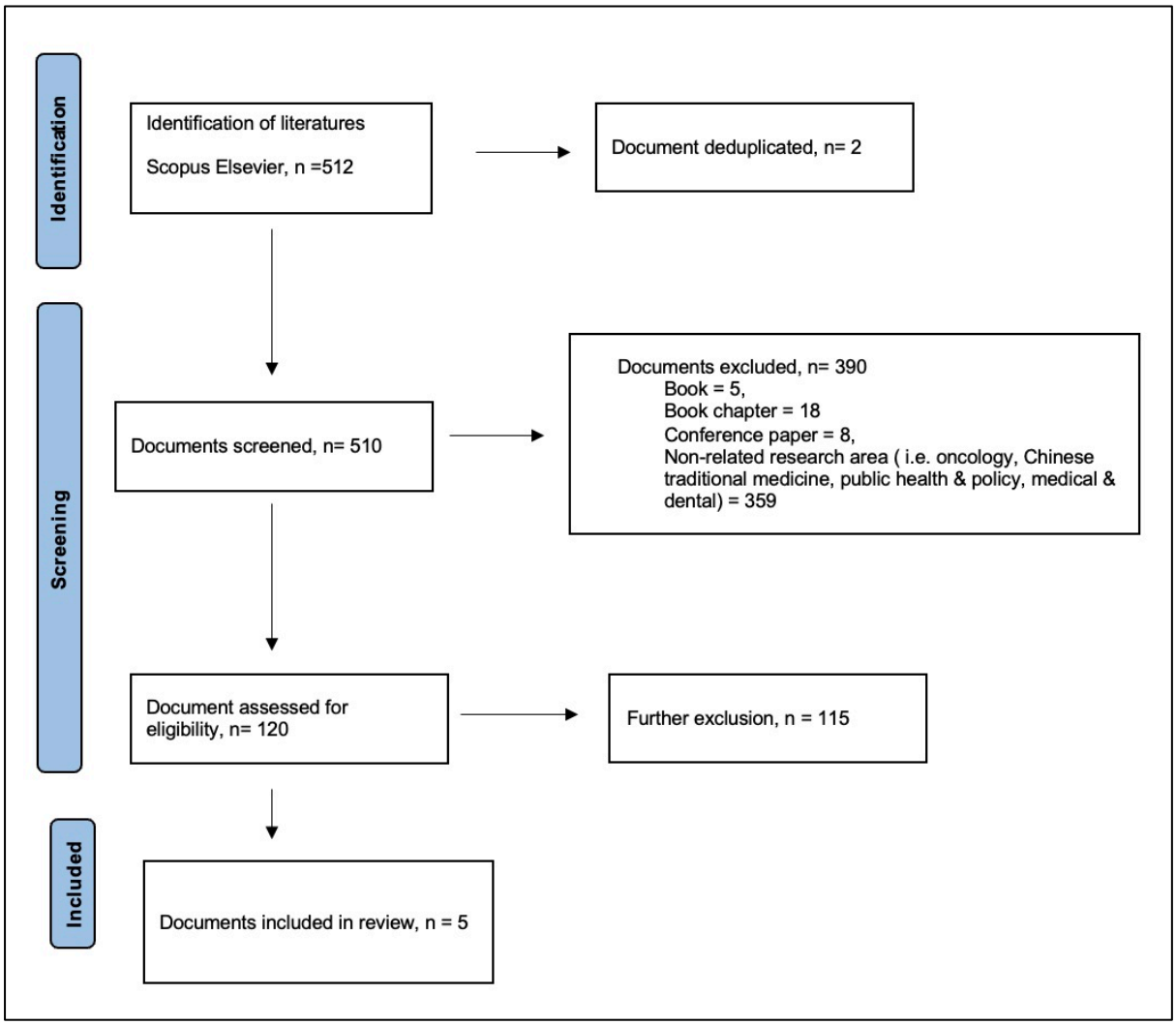
The dance and music-based programs targeted a range of older adults with varying needs. One group comprised participants from the Aesop Dance to Health program, suggesting these were active older adults interested in health and well-being. Their participation in a dance program indicates a baseline level of mobility and fitness. Another group focused on older adults considered at risk for dementia or Alzheimer's disease. Early intervention with these individuals might help maintain cognitive function and improve overall well-being. Another study included older adults diagnosed with Parkinson's disease. Music and dance therapy can potentially improve motor function, coordination, and balance in individuals with Parkinson's. Another group involved outpatients with mild or moderate

dementia, along with their caregivers. Including caregivers in the intervention acknowledges the importance of their role and explores how therapy can benefit both the patient and caregiver. Finally, a study investigated the effects on non-institutionalized elders experiencing poor sleep quality. This group likely included older adults living independently who faced challenges getting a good night's sleep. By targeting these diverse populations, the research explored the wide-ranging applications of dance and music-based intervention in improving the lives of older adults.

Table 1

Included publications.

Author (Year)	Title	Intervention	Instrument used	Study design
Goldsmith & Kokolakakis (2021)	A cost-effectiveness evaluation of Dance to Health: a dance-based falls prevention exercise programme in England	Falls prevention by dancing	• Monitoring data • Quality Adjusted Life Year	Pre-post design
Bluemen et al. (2020)	A social dancing pilot intervention for older adults at high risk for Alzheimer's disease and related dementias	Cognitive improvement by dancing	• Memory Impairment Screen • AD8 Dementia Screening Interview	Randomized controlled trial: Single blinded
Aleixo et al. (2022)	Active music therapy in dementia: results from an open-label trial	Symptom elevation by music	• Clinical Dementia Rating • Mini-Mental State Examination • Alzheimer's Disease Assessment Scale • Neuropsychiatric Inventory • Quality of Life scale • Zarit Burden Interview[ii] • Alzheimer's Disease Cooperative Study	Randomized controlled trial: Open-label
Zafar et at. (2017)	Adapted Tango[iii]improves aspects of participation in older adults versus individuals with Parkinson's disease	Parkinson rehabilitation by dancing	• Hoehn & Yahr Scale[iv] • Unified Parkinson's Disease Rating Scale • Beck Depression Inventory-II[v] • Composite Physical Function Index • Montreal Cognitive Assessment[vi] • Impact on Participation and Autonomy questionnaire	Pre-post test
Shum et al. (2014)	The effects of sedative music on sleep quality of older community-dwelling adults in Singapore	Sleep quality by music	• Geriatric Depression Scale • Pittsburgh Sleep Quality Index	Randomized controlled study



Adapted from Page et al. (2021). A flowchart of this study's screening method. The authors found 512 documents based on the keyword search. Next, the duplicates and publications that are not articles were excluded, which left to only 120 publications. After further analysis and exclusion, only 5 articles were relevant for this review.

Figure 1. Review flow.

Table 2

Characteristic of articles

Category	Interven-tion	IV	DV	Subject/ Patient	Aim	Music and dance-based Intervention delivered by
Dance	Incorporation from Otago Exercise Programme & Falls Management Exercise Programme	• Pre-exposure • Post-experien-ce	• Frequency of fall, hospital visits • Cost of program-me delivery	Older adult from Aesop Dance to Health programme	Affordable solutions to the problem of falls among the older people	Professional dance artists who have been fully trained and qualified in falls prevention exercise methods
	Social ballroom dancing, treadmill walking-to-music	• Pre-intervention • During intervention at month 2 & 4 • Post-intervention at month 6 & 9	• Composi-te EF score • Neuroplas ticity	Older adults at-risk for dementias & Alzhei-mer's	Improvement in executive function, and functional neuroplasticity	Instructors experienced in teaching older adults (www.rbcares.org);
	Adapted Argentine tango	• Pre-interven-tion • Post-interven-tion at 1-week • Post-interven-tion at 3-month	• Participa-tion level • Functional reach test	Older adult diagnosed with idiopathic "definite Parkinson"	Alleviating motor and psychosocial symptoms, and evaluate participation level	Tango instructor
Music	Active music therapy delivered by qualified music therapist	• Pre-exposure • Post-experience	• Clinical characteris-tics • Behaviou-ral observa-tion • Caregiver burden	Outpatient elders with mild and moderate dementia + respective caregivers	Cognition and neuropsychia-tric symptoms relieve	Music therapist with PhD qualification and more than 20 years of experience working in the dementia field
	Western classic, Chinese classic, New Age, and Jazz music on sleep quality	• Pre-experi-ence at week-1 • Post-experience at week 2 to 6	• Pittsburgh Sleep Quality Index • Sleep patterns	Non-institutiona lized elders with poor sleep quality	Sleep quality enhancement	Researchers from the nursing department and school of medicine

Type of Music and dance-based intervention and their benefits.

The discussed papers unravel the intricacies of intriguing possibilities surrounding non-pharmacological interventions for older adults. Within this complex system, dance programs, social dancing, music-based intervention, and music listening emerge as captivating threads, each offering its own unique potential benefits. The Dance to Health program in England presents a tantalizing glimpse into a world where falls and healthcare costs among the older population could be significantly reduced, promising substantial savings for its government-funded – National Health Service (NHS). However, amidst this promising landscape, the need for more robust data from randomized controlled trials (RCTs) and a nuanced understanding of participants with dementia weave intricate patterns of complexity and depth.

Social dancing, an artful fusion of movement and connection, holds the potential to illuminate new pathways for enhancing executive function and nurturing neuroplasticity in older adults at risk of cognitive decline (Blumen et al., 2020; Goldsmith & Kokolakakis, 2021). Yet, its full impact remains shrouded in uncertainty, beckoning further exploration through the lens of larger, more comprehensive RCTs. Amidst the symphony of therapeutic possibilities, music-based intervention emerges as a captivating melody that soothes the anxious hearts of older patients with dementia, offering respite and solace (Aleixo, 2022). However, this melodious composition calls for a grander orchestration, one that encompasses cognition, quality of life, and the symphony of a larger study to validate its effects and efficacy. Like a captivating dance, Adapted Tango (Zafar et al., 2017) beckons older adults, including those with Parkinson's disease, into a realm of enhanced participation, where motivation and adherence intertwine seamlessly with the rhythms of rehabilitation. Yet, in the intricate choreography of aging and disease-related challenges, questions linger and the need for grander ensembles, larger samples, and long-term studies becomes apparent. Lastly, the harmony of music, a lullaby for weary souls, caresses the realm of sleep, unveiling a pathway towards improved sleep quality for older adults (Shum et al., 2014). Amidst this nocturnal journey, the interplay between physiological relaxation responses and the quietude of distracted thoughts creates a captivating enigma, demanding further exploration amidst the depths of stress, sleep, and music.

Type of music and dance-based intervention

Among the five included articles, three investigation approach were randomized controlled study, or to be deemed as clinical trial. In scientific research, a randomised controlled trial (RCT) involves high volume of volunteers randomly assigned to one of several groups. While the other group serves as a control, one group receives an intervention or therapy. RCTs shine in their ability to impartially select participants and balance out any unforeseen factors by randomly assigning them to different groups, reinforcing the credibility of the study's findings. RCTs involve gathering data from a large pool of volunteers, sometimes in the thousands, to ensure the findings are not due to chance. These participants are split into groups: the experimental group gets the new treatment, while the control group might get a sugar pill or the usual treatment for a fair comparison. This setup lets scientists see if the new treatment really works, without other factors muddying the waters (Hariton & Locascio, 2018).

The goal of an RCTs is to solidly prove whether a new treatment is effective and safe. By looking at the results from the different groups, scientists can figure out if the treatment has a real healing effect. The evidence from RCTs is so reliable that it often becomes the basis for new health guidelines and helps doctors make informed choices in treating patients. RCTs are also essential when it comes to introducing new treatments to the market. Government organizations that check the safety of drugs, like the FDA in the US or the EMA in Europe, preferentially support on the result from RCTs. They use these trials to make sure that new treatments are safe and work before allowing phase 4: public release to the market (Chidambaram & Josephson, 2019). While Randomized Controlled Trials (RCTs) are a highly regarded method of scientific research, they are not without their flaws. One of the most significant drawbacks is the high cost associated with conducting these trials. They often require substantial financial investment, as well as a significant amount of time to plan, execute, and analyse. The complexity of the process can also add to the overall cost and time required. In addition to the financial and temporal considerations, there are also ethical dilemmas that researchers must grapple with (Deaton & Cartwright, 2018). One such ethical quandary is the issue of withholding potentially

beneficial treatments from the control group. If there is strong evidence to suggest that a treatment is effective, it may be considered unethical to withhold this treatment from the control group, particularly if the absence of treatment could result in harm or discomfort. This is a complex issue that requires careful consideration and balancing of the potential benefits and harms (Smith et al., 2015).

On the other hand, the scientific rigor of the study could be supported by providing a placebo to the control group. This allows for a more accurate comparison of the effects of the intervention, whether it be a drug or a physical therapy, against a neutral 'treatment'. This is a common practice in RCTs and is considered ethically acceptable as long as the participants are fully informed and consent to the use of a placebo. Another challenge in conducting RCTs is retaining participants for the duration of the study. There are many reasons why participants might choose to leave a study. They may experience adverse reactions to the treatment, find that the treatment is not effective for them, or simply decide that they no longer wish to participate. If a significant number of participants leave the study, it can skew the results and reduce the validity of the findings. Therefore, strategies to retain participants and minimize dropout rates are an important aspect of planning and conducting RCTs (Smith et al., 2015). RCT generalizability may be circumscribed, especially if the study sample inadequately represents the target population or specific settings. Concerns surrounding attrition bias emerge, as participant dropouts or non-adherence to assigned interventions or treatments can taint the integrity of RCT findings (Llewellyn-Bennett et al., 2016). High costs, ethical considerations, and participant retention are all issues that researchers must carefully consider and address when planning and conducting these studies. Despite these challenges, RCTs remain a cornerstone of evidence-based research due to their ability to provide robust and reliable results.

Expanding on the subject matter, the other two included articles were pre-post research design. Pre-post research designs, which are classified as quasi-experimental designs, are used to evaluate the effectiveness of interventions and treatments. This method, while not as foolproof as RCTs, nevertheless holds significant importance in the realm of scientific research. In this design, information is obtained from participants both before and after the intervention is put into place in order to assess any changes in the target result (Handley et al., 2018). The pre-post research design is essentially a method that scrutinizes the condition of things before and after the implementation of a particular treatment. This is done with the aim of determining whether or not the treatment is effective. This kind of research design proves to be particularly useful in situations where conducting RCTs is not feasible due to various reasons such as ethical considerations, financial constraints, or practical issues. Pre-post research designs find utility across diverse domains, including health, education, and psychology, facilitating the evaluation of intervention or treatment effectiveness (Miller et al., 2020). Nonetheless, these designs encounter various challenges that jeopardize internal validity, including factors like history, maturation, and regression to the mean. Consequently, meticulous attention must be given to the design, execution, and analysis stages to optimize both internal and external validity (Handley et al., 2018).

Pre-post research designs offer several advantages, including simplicity in implementation and cost-effectiveness due to limited data collection points. Pre-post studies offer a more accessible and economical alternative to RCTs. This makes them an excellent choice for preliminary research or in scenarios where there is a scarcity of funds. They could rapidly indicate if a treatment appears to be yielding positive results (Gopalan et al., 2023). However, it is important to note that this method does come with its own set of drawbacks. Without the meticulous arrangement that RCTs require, pre-post studies can potentially be less dependable. The reliability of the findings may be impacted by threats to internal validity such as history, maturity, and regression to the mean (Harris et al., 2006). Establishing causation is difficult in the absence of a control group, because non-equivalent control groups could induce biases. Additionally, other events occurring concurrently with the study can also have an impact on the outcomes. Likewise, the element of randomization can also play a role in skewing the results. Therefore, while pre-post studies provide a quick and cost-effective alternative to RCTs, they must be approached with caution due to these potential pitfalls (Cook & Campbell, 1986). To maximize validity, researchers should carefully consider the study design, execution, and analysis. Implementing control measures, accounting for confounding variables, and acknowledging limitations can enhance the reliability of findings. Despite these limitations, pre-post research designs offer a cost-effective approach to evaluate interventions, providing valuable insights into their effectiveness.

Music and dance-based interventions are delivered by a diverse team of professionals, each bringing their specialized music and dance expertise to the intervention, depicted in Table 2. Professional dance

artists, who are fully trained and qualified in falls prevention exercise methods, contribute their knowledge to ensure both the enjoyment and safety of participants. Instructors experienced in teaching older adults, with resources and support from organizations such as www.rbcares.org, tailor the interventions to suit the needs and capabilities of the elderly. A tango instructor adds a unique element to the program, using rhythmic movement to enhance the therapeutic experience. Additionally, a music therapist with a PhD and over 20 years of experience in the dementia field provides in-depth therapeutic techniques specifically designed for individuals with dementia. Only in one study, the people who conducted the music intervention were researchers from the nursing department and the school of medicine.

Types of financial challenges associated with music and dance-based interventions.

Older people may encounter obstacles that pose significant challenges for them. According to Zafar et al. (2017) participants highlighted that managing finances emerged as a difficulty, for adults whether they had Parkinsons disease or not during both the initial assessment and follow up in relation to their interest in participating in Tango activities. These financial management challenges could be attributed to factors stemming reduced mobility due to the illness, increase of dependence on family members or carers at assisted living facilities. Despite these financial challenges, they exhibited determination and agility in managing their finances to the best of their ability after the intervention. The intervention potentially improved their financial well-being indirectly, as evidenced by their increased determination and agility in managing their finances despite facing challenges. While the study did not have a primary focus on the financial implications, participants themselves brought up financial challenges associated with caregiving. Further investigation through targeted questioning could elucidate a clearer link between the music intervention and financial well-being. In another study, caregivers from Aleixo et al. (2022) revealed that there was no significant difference in burden (financially) between pre- and post-intervention stage but pointed out weekly visitation for music-based intervention as burden instead. A possible explanation is that the intervention itself was not costly and easy to implement. However, this study did not analyse the total cost to caregivers, including time commitments.

Here raises the importance of sustainable funding for musical intervention (Aleixo et al., 2022). Taking example from Goldsmith and Kokolakakis (2021), the Dance to Health fall prevention program has exhibited positive outcomes from both financial and economic standpoints, demonstrating a sustainable funding for musical intervention. The program's positive outcomes, including a 58% reduction in falls and potential cost savings of over £196 million, highlight its effectiveness in reducing fall-related expenses. The Return on Investment (ROI) calculations show that for every £1 invested in Dance to Health, there is a financial ROI of £1.18 and a potential societal ROI of £2.89, considering the improved quality of life measured in Quality Adjusted Life Years (QALYs). These findings indicate that investing in the program can yield significant financial returns and cost savings for healthcare systems, specifically the NHS in England. Moreover, the program's unique ability to provide a tangible return on investment among dance-based interventions further strengthens the case for sustainable funding. However, it's important to note that while such programs can be beneficial, they are not universally accessible or affordable, highlighting the need for more inclusive and equitable funding models. The Net Monetary Benefit (NMB) per person for Dance to Health is £1,615.93, demonstrating the cost-effectiveness of the program compared to standard care (Goldsmith & Kokolakakis, 2021). This leads us to consider the potential of similar programs in other countries, and the need for research to evaluate their cost-effectiveness and accessibility.

These financial benefits and cost savings make a compelling argument for allocating sustainable funding to support the continued implementation and expansion of the Dance to Health program. By investing in musical-based interventions, healthcare organizations and policymakers can make informed decisions about resource allocation, ensuring the long-term sustainability of effective aged care initiatives and optimizing healthcare spending. However, it is equally important to consider the potential barriers that may hinder the widespread adoption and implementation of such programs, such as lack of awareness, resistance from healthcare professionals, or logistical challenges.

Implications for future research

The finding provides substantial understanding on the financial matter toward the caring of older adults using either music or dance-based program. Dance-based interventions offer potential benefits for older adults, such as improving participation and motivation for rehabilitation in older adults. It is cost-effective and incorporates proven exercises. It demonstrates significant cost savings and highlights the need for future research with a control group and participants with dementia. A pilot study explores the feasibility of social dancing for older adults at risk of dementia, comparing it with treadmill walking and suggesting greater cognitive and neuroplasticity benefits from dancing (Blumen et al., 2020). Similarly, music-based interventions show promise. Active music-based intervention helps alleviate cognitive and neuropsychiatric symptoms in dementia patients, while music listening enhances sleep quality for older adults. It's equally important to consider the potential barriers to implementing these interventions. A lack of trained music or dance-based professionals in these fields can be a significant obstacle. However, the study shows through multidisciplinary collaboration, between professionals in the music and dance with those in the medical profession, can highlight potential strategies to help reduce costs, making these therapeutic programs more accessible and sustainable for older adults.

Furthermore, it is crucial to explore how these interventions can be integrated into existing healthcare systems and what kind of policy changes may be required to facilitate this. Subsidizing or reimbursing music and dance-based interventions through healthcare systems could increase accessibility for older adults facing financial constraints. Developing music and dance-based programs for caregivers, raising awareness about the benefits of these interventions, and advocating for policy changes that facilitate their integration into standard care protocols are also useful ways of integration. However, tailoring music and dance-based programs to the specific cultural and customary contexts of the target population is crucial for optimal effectiveness. Future research should delve into the financial implications of music and dance-based interventions, for a broader range of conditions affecting older adults, such as dementia. This could involve analysing not just program costs, but also potential healthcare cost offsets associated with improved patient outcomes. Additionally, studies could explore the time commitment required from caregivers for participation in these interventions, providing a more comprehensive picture of the financial impact on caregivers. The financial aspect emerged not as a primary focus of most of the studies but rather as an area of concern raised by participants themselves. While the study did not delve deeply into this aspect, participants highlighted financial challenges. Further investigation through targeted questioning could elucidate a clearer link between the intervention and financial well-being.

Future studies in music and dance-based interventions could explore the implementation of governmental-subsidization music therapy for unfortunate and/or low-income older adults. Such studies would aim to provide a deeper understanding of the potential costs associated with making music and dance-based interventions more accessible and beneficial to vulnerable populations. Future studies in this area could estimate the potential savings in healthcare costs and reduced social services care from music and dance-based interventions. Researchers would investigate the financial barriers such as location, food and transportation of subsidized music and dance-based interventions program to effectively reach the target population. Other aspects that these studies could investigate is the cost of bureaucratic processes of these subsided music and dance-based interventions. Moreover, it would be interesting to examine the psychological and emotional impact of music and dance-based interventions on these individuals, to better understand its overall effectiveness and potential benefits.

Future studies could also explore different funding mechanisms, and collaboration between government agencies, healthcare providers, and music and dance-based qualified practitioners. Furthermore, it would be beneficial to investigate the potential for public-private partnerships in this field, as well as the role of non-profit organizations in supporting music and dance-based intervention initiatives. For example, exploring the criteria and challenges of these collaborations with insurance companies on providing certain amount of cost coverage for older adults seeking the benefits from music and dance-based intervention.

Limitations

This study is limited to English-language articles, which might narrow the variety of research outcomes. To make this systematic literature review more thorough, the authors should consider looking at studies published in other languages in future work. This way, those working and researching in music and dance-based intervention for older adults can access a richer collection of insights and findings. By bringing in research from different languages and cultures, it can build practices that are more well-rounded and welcoming for everyone. A music and dance-based curriculum benefits from a diverse range of experiences and perspectives, that would be overlooked it if relied exclusively on English-language sources. Accepting a vast range of cultural perspectives is essential in a sector like music and dance-based programs, which are all about the various ways people express themselves via music. Understanding other cultures is essential in music and dance-based therapies because therapists frequently encounter people with diverse life stories and musical preferences that reflect their cultural backgrounds. With the inclusion of non-English studies, music therapists will be better able to develop interventions based on traditional and culturally relevant music and dances that can improve the emotional well-being of older adults.

Conclusion

While music and dance-based program for older people offer numerous benefits, financial resources are needed to develop and sustain this program for older people. Caregivers and caregiving services may also face additional costs for training and incorporating dance and music into their care routines. These additional financial costs on joining the training and incorporating dance and musical approach toward the caring and wellbeing of older adults may be the reason for the resistance of dance and music care therapy. There is a need to explore causes of such resistance to investing in dance and music care therapy. More studies that focus on documenting and calculating the return of investment in these interventions are needed.

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Author's Contributions

All authors contributed equally to this research.

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[i] *Context= Aged care; Intervention= Musical intervention; Mechanisms= Effectiveness on elders; Outcome= Financial planning*

[ii] *ZB Interview consists of 22 questions and assesses how caregiving tasks affect carer finances, physical and mental health, and social life (Aleixo et al., 2022)*

[iii] *A modified variation of the standard Argentine tango that takes into account motor limitations (Hackney & Bennett, 2014)*

[iv] *HY Scale applied to the staging of Parkinson's disease-related functional impairment and assists in gauging the severity (Larsen et al., 1983)*

[v] *BDI-2 is a 21-item self-report inventory designed to assess the presence and severity in depressive symptoms (Lee et al., 2017)*

[vi] *MoCA is intended to test for mild cognitive impairment since it has greater sensitivity and specificity than the Mini-Mental State Examination (Nasreddine et al., 2005)*

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