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DIGITAL ARTS INTERVENTIONS FOR OLDER ADULTS WITH COGNITIVE IMPAIRMENT IN CARE HOMES

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ABSTRACT

The growing prevalence of cognitive impairment and dementia among older adults, particularly in care home settings, has led to an increasing interest in non-pharmacological interventions aimed at improving quality of life, cognition, and psychosocial well-being. Digital arts interventions, which integrate creative and artistic activities through digital technologies, have emerged as a potential solution to address these needs. This systematic–realist review synthesises existing literature on digital arts interventions for older adults with cognitive impairment in care homes. By applying realist synthesis principles, the review examines how these interventions are implemented, the mechanisms through which they produce outcomes, and the contextual factors that influence their success. Key digital arts interventions, including virtual art galleries and interactive creative tasks, are explored in relation to their effects on cognition, emotional well-being, social interaction, and overall quality of life. The review highlights promising mechanisms such as reminiscence, cognitive stimulation, and social connectedness, while also identifying significant gaps in the theoretical understanding, outcome standardisation, and methodological rigor in the field. The findings underscore the need for more robust and theory-driven research to optimise the design and implementation of digital arts interventions in care homes.

KEYWORDS

Digital arts interventions; cognitive impairment; dementia; care homes; older adults; non-pharmacological interventions; quality of life; cognitive stimulation.

1. INTRODUCTION

Global population ageing represents one of the most significant public health and social care challenges of the twenty-first century. Advances in healthcare, nutrition, and living conditions have contributed to a marked increase in life expectancy worldwide, leading to a rapidly growing proportion of older adults. According to Kalache and Keller (2000), along with longevity, there has been a parallel rise in age-related chronic conditions, frailty, cognitive impairment, and dementia. These challenges are particularly pronounced within long-term residential care settings, where older adults often experience complex health needs, functional dependency, and limited opportunities for meaningful engagement. As residents in care homes often face high levels of cognitive decline, reduced autonomy, social isolation, and a restricted range of stimulating activities, they are especially vulnerable to the negative effects of boredom, loneliness, and loss of identity (Gianfredi et al., 2025). Such challenges can exacerbate behavioural and psychological symptoms, further diminishing overall quality of life (Huizenga et al., 2022).

While pharmacological treatments continue to play a central role in clinical management, there is growing recognition that medication alone is insufficient to address the psychosocial and emotional dimensions of ageing and dementia. Consequently, non-pharmacological interventions that support well-being, cognition, social participation, and dignity have become increasingly important in gerontological research, policy, and practice (Özişli, Kara et al., 2024). One such

promising non-pharmacological approach is arts-based interventions. A substantial body of research suggests that engagement with the arts—whether through visual arts, music, storytelling, or creative expression—can significantly improve emotional well-being, stimulate cognitive processes, reinforce personal identity, and foster social connection among older adults (McFadden and Basting, 2010).

For individuals living with dementia, arts-based activities have been found to facilitate non-verbal communication, trigger reminiscence, and provide moments of enjoyment and meaning, even in later stages of cognitive decline. Importantly, the arts provide a strengths-based approach, focusing on remaining abilities rather than deficits, and aligning closely with person-centred models of care (Hargis and Lu, 2021). Despite their documented benefits, traditional face-to-face arts programs face practical and structural barriers within care home settings. Limited staff capacity, funding constraints, restricted access to artists or cultural institutions, and residents' mobility limitations often reduce the frequency and sustainability of in-person arts activities (MacRitchie et al., 2023). In response to these challenges, digital technologies have increasingly been introduced as alternative or complementary modes of delivering arts-based engagement in care homes.

The integration of arts and digital technology has led to the emergence of a rapidly expanding yet conceptually fragmented field of research and practice. Across the literature, interventions that combine art and digital technology are variously described as arts-based digital interventions, digital arts activities, creative digital health tools, cultural technology interventions, or art–technology approaches. These terms are often used interchangeably, despite important differences in theoretical orientation, intervention design, and intended outcomes (Davies et al., 2010). This lack of conceptual clarity has made it difficult to develop a coherent body of knowledge and to translate research findings into practical applications in care homes. Furthermore, the existing evidence base is marked by considerable methodological heterogeneity. Studies vary widely in terms of design, sample size, outcome measures, intervention duration, and target populations. Some research focuses on community-dwelling older adults, while others target care home residents, often with varying levels of cognitive impairment. Outcomes measured in these studies range from quality of life and mood to cognitive function, engagement, and usability, with many studies using non-standardised or bespoke tools. As a result, drawing definitive conclusions about the effectiveness of these interventions or identifying best practices remains challenging (Takáč, 2025).

Saima Nafis's doctoral research represents a significant and foundational contribution to the field. Her work was one of the first to comprehensively examine arts-based digital interventions (ABD) for older adults in care homes, employing a realistic review approach to explore feasibility, acceptability, and potential mechanisms of impact (Ofosu et al., 2023). Nafis's review highlighted the promise of ABD interventions in enhancing well-being and engagement among care home residents, including those living with dementia. However, the review also revealed substantial limitations within the evidence base, including the heterogeneity of interventions, the predominance of small-scale and low-quality studies, and the absence of a coherent theoretical framework linking context, mechanism, and outcomes. Nafis's findings emphasized the need for more rigorous syntheses, rather than further isolated pilot studies. Her realist review demonstrated that ABD interventions cannot be adequately understood through effectiveness-focused approaches alone. Instead, there is a need to examine how and why such interventions work, for whom, and under what conditions (Davies, 2011). Factors such as staff facilitation, care home culture, group versus individual delivery, and residents' prior exposure to art and technology all shape intervention outcomes. These insights underscore the value of realist approaches that move beyond binary questions of effectiveness to explore complexity and context.

The present review directly responds to the challenges identified in Nafis's work by undertaking a systematic–realist synthesis of the literature on digital arts interventions for older adults in care homes. This review aims to consolidate and extend existing knowledge, while addressing the conceptual and methodological gaps that have previously hindered the field's development. By combining systematic review methods with realist synthesis principles, this study seeks to offer a more comprehensive and nuanced understanding of the effectiveness of digital arts interventions in care homes. Rather than excluding studies based on methodological weakness, this review acknowledges the developmental nature of the field and seeks to extract explanatory insights from diverse forms of evidence (Tranfield, Denyer et al., 2003).

A key contribution of this review is its focused examination of digital applications and platforms designed specifically for older adults with cognitive impairment and dementia (Piau et al., 2019). Interventions such as Armchair Gallery and ArtOnTheBrain serve as examples of the growing class of tools that integrate visual art, guided discussion, reminiscence, and cognitive stimulation within accessible digital formats. Although these applications have been associated with positive outcomes—such as improved mood, engagement, social interaction, and perceived cognitive stimulation—the mechanisms through which they operate remain insufficiently theorised. By systematically cataloguing these tools and their reported outcomes, this review aims to provide a clearer understanding of common design features,

delivery models, and areas of promise.

Equally important is the need to clarify terminology within this interdisciplinary field. This review adopts the term "arts-based digital interventions" to refer specifically to interventions in which artistic or cultural content is central and is delivered, mediated, or enhanced through digital technology with the explicit aim of supporting health, well-being, or quality of life (Williams et al., 2023). This definition distinguishes arts-based digital interventions from broader art–technology interventions, where digital innovation is the primary focus, and the arts elements may be secondary or instrumental. Establishing these conceptual distinctions is essential for the theoretical development, research synthesis, and practical implementation of arts-based digital interventions in care homes.

The objectives of this review are threefold. First, it aims to systematically identify and synthesise existing studies on digital arts interventions for older adults, with particular attention to care home populations (Mikkelsen et al., 2019). Second, it seeks to catalogue and compare digital applications and platforms used with individuals experiencing cognitive impairment and dementia, examining reported outcomes and modes of delivery. Third, it endeavours to clarify terminology and conceptual boundaries within the field, contributing to a more coherent and cumulative body of knowledge. Through this systematic–realist approach, the review aims to inform future research, guide practice in care home settings, and support the development of theoretically grounded and sustainable digital arts interventions for ageing populations (Goodman et al., 2016).

2. Conceptual Background

2.1 Arts, Ageing, and Health

A growing body of interdisciplinary research demonstrates that engagement with the arts can play a significant role in supporting health and well-being in later life. Arts-based activities—including visual arts, music, storytelling, theatre, and other forms of creative expression—have been associated with improvements in psychological well-being, enhanced social participation, cognitive stimulation, and the preservation of personal identity among older adults (McKay, Barton et al. 2020). These benefits are particularly salient for individuals experiencing cognitive impairment or dementia, for whom conventional verbal or cognitively demanding forms of interaction may become increasingly challenging. Arts-based activities offer alternative modes of engagement that rely on sensory, emotional, and embodied forms of communication, enabling participation that does not depend solely on intact memory or language abilities (Young, Camic et al. 2016).

From a theoretical perspective, arts engagement aligns closely with strengths-based and person-centred models of care, which emphasise remaining capacities, individual preferences, and meaningful engagement rather than deficit-oriented approaches. For older adults living with cognitive impairment, the arts can facilitate emotional expression, evoke memories, and reinforce a sense of identity and continuity across the life course. Even in more advanced stages of dementia, arts-based activities have been shown to create moments of connection, enjoyment, and recognition, contributing positively to perceived quality of life. As such, the arts are increasingly recognised as an important non-pharmacological approach within frameworks of healthy ageing and dementia care.

The relevance of arts-based interventions is particularly pronounced within care home environments. Residential care settings are often characterised by institutional routines, clinical priorities, and time constraints that may inadvertently limit opportunities for meaningful engagement and self-expression. Older adults living in care homes frequently experience loneliness, reduced autonomy, and a sense of cultural and social exclusion, which can further exacerbate cognitive decline and psychological distress (Neves, Sanders et al. 2019). Arts-based activities can counteract these experiences by creating shared moments of enjoyment, encouraging social interaction, and reconnecting residents with culturally meaningful content. Empirical studies have shown that participation in arts activities within care homes can reduce agitation, improve mood, and enhance residents' perceived quality of life, including among those with moderate to advanced dementia.

Despite these documented benefits, the implementation of traditional, face-to-face arts programmes in care homes remains uneven and often unsustainable. Structural and practical barriers—such as limited staffing levels, time pressures, budgetary constraints, and difficulties accessing artists or cultural facilitators—frequently restrict the frequency and continuity of arts provision. In addition, residents' physical frailty, sensory impairments, and mobility limitations may limit participation in activities that require travel or extended physical engagement. These challenges have contributed to inequitable access to arts programmes across care settings and have prompted increasing interest in alternative delivery models that are more flexible, scalable, and adaptable to the realities of long-term residential care (Zakumumpa, Rujumba et al. 2020).

2.2 Digital Technology in Care Homes

Digital technologies have increasingly been positioned as potential tools for addressing many of the challenges associated with population ageing and long-term care provision (Czaja 2016). In care home settings, the use of tablets, touchscreens, interactive displays, and digital

applications has expanded in recent years, supported by broader policy agendas promoting digital inclusion and innovation in health and social care. These technologies offer new opportunities for communication with family members, access to information and entertainment, and engagement in cognitive, social, and recreational activities.

When designed and implemented appropriately, digital technologies can be adapted to the specific needs and abilities of older adults, including those with cognitive impairment. Touchscreen interfaces, visual and audio-based content, and intuitive navigation reduce reliance on complex motor skills or memory, making digital tools more accessible to individuals with varying levels of functional ability (Novak and Lhotska 2025). Importantly, digital interventions can be delivered flexibly, either in group settings facilitated by staff or on an individual basis at residents' own pace, allowing integration into everyday care routines without substantial disruption.

The integration of digital technology with arts and cultural content has opened new possibilities for engagement in care home contexts (MacRitchie, Floridou et al. 2023). Digital platforms can provide access to museum collections, galleries, music archives, and creative activities that would otherwise be inaccessible due to physical, geographical, or logistical constraints. For example, virtual art viewing sessions, guided discussions around artworks, and interactive creative tasks can be delivered directly within communal spaces or residents' rooms. Such approaches have the potential to democratise access to culture and creativity, reducing inequalities associated with age, disability, and institutionalisation.

However, the adoption of digital technologies in care homes is not without challenges. Barriers include limited digital literacy among staff and residents, concerns regarding cost, infrastructure, and maintenance, and scepticism about the appropriateness of technology for individuals living with dementia (Johnston, Koikkalainen et al. 2022). There may also be anxieties about technology replacing human interaction rather than complementing it. These concerns highlight the importance of examining not only whether digital arts interventions are effective, but how they are implemented, facilitated, and experienced within specific care contexts. Understanding the social, organisational, and cultural conditions that support or hinder meaningful engagement with digital arts is therefore essential (O'Connor, Hanlon et al. 2016).

2.3 Defining Arts-Based Digital Interventions

A central conceptual challenge in this field is the lack of consistent and precise terminology. Across the literature, interventions that combine arts and digital technology are described using a wide range of terms, including digital arts activities, creative digital health tools, cultural technology interventions, and art–technology approaches. These terms are often used interchangeably, despite significant differences in theoretical orientation, intervention design, and intended outcomes. This conceptual ambiguity makes it difficult to compare studies, synthesise findings, and develop cumulative knowledge, and risks conflating fundamentally different types of interventions under a single label (Whittemore, Chao et al. 2014).

Drawing on Saima Nafis's doctoral research and realist review, this study adopts the term arts-based digital interventions to describe interventions in which artistic or cultural content is central and is delivered, mediated, or enhanced through digital technology. In such interventions, the arts are not merely decorative or supplementary; rather, they constitute the primary mechanism through which engagement, meaning-making, and potential health benefits are generated. Digital technology functions as an enabling medium that extends access, supports interaction, and facilitates delivery within constrained care environments (Young and Nesbitt 2017).

This conceptualisation distinguishes arts-based digital interventions from broader art–technology interventions in which technological innovation is the dominant driver and artistic elements are secondary, instrumental, or interchangeable (Wilson 2003). For example, technology-led cognitive training programmes that incorporate aesthetic visuals but prioritise performance metrics may not align with the core principles of arts-based digital interventions. Similarly, generic digital games or entertainment platforms that lack meaningful artistic or cultural content fall outside the scope of this conceptual framework.

Clarifying this distinction is particularly important for realist synthesis, which seeks to understand how and why interventions generate outcomes in specific contexts. In arts-based digital interventions, mechanisms such as reminiscence, emotional resonance, social connection, and identity affirmation are activated through engagement with art and culture, rather than through technological novelty alone. Recognising these mechanisms enables a more nuanced understanding of why certain digital arts interventions may be effective for older adults with cognitive impairment in care homes, while others fail to produce meaningful or sustained outcomes. Such conceptual clarity is essential for advancing theory, improving research design, and informing the practical implementation of digital arts interventions in residential care settings (Goodman, Dening et al. 2016).

3. Methods

3.1 Study Design

This study employed a combining the rigorous, transparent procedures of a systematic review with the explanatory and theory-driven logic of realist synthesis (Gilmore, McAuliffe et al. 2019). This methodological approach was selected in recognition of the complexity of digital arts interventions and the heterogeneity of the existing evidence base relating to older adults with cognitive impairment in care home settings. While systematic review methods are well suited to identifying, appraising, and summarising available evidence, they are often limited in their ability to explain how and why complex, context-sensitive interventions produce outcomes. In contrast, realist synthesis is specifically designed to address such complexity by examining the interaction between context, underlying mechanisms, and observed outcomes (Lakomý and Society 2023).

Consistent with the principles articulated by Pawson and colleagues, the realist component of this review focused on understanding how, why, for whom, and under what circumstances digital arts interventions generate outcomes for older adults with cognitive impairment. This approach builds directly on Saima Nafis's doctoral realistic review, which demonstrated that effectiveness-focused synthesis alone was insufficient to capture the contextual and mechanistic dimensions shaping arts-based digital interventions in care homes. By integrating systematic search procedures with realist analytical logic, the present review aimed to extend and consolidate explanatory insights across a broader and more diverse body of literature, while remaining sensitive to variations in care contexts, intervention design, and participant characteristics.

3.2 Search Strategy

A comprehensive and systematic search strategy was developed to identify relevant empirical studies and grey literature relating to digital arts interventions for older adults with cognitive impairment in care home settings. Searches were conducted across major academic databases selected for their coverage of health, psychology, social care, gerontology, and interdisciplinary research. To reduce publication bias and capture emerging, practice-based, or exploratory evidence, grey literature sources were also included. These comprised doctoral theses, evaluation reports, conference proceedings, and publications produced by cultural, arts, and heritage organisations engaged in digital engagement with older populations.

Search terms were developed using a combination of controlled vocabulary (where applicable) and free-text keywords, reflecting four core conceptual domains:

(1) ageing and older adults (e.g. older adults, ageing, elderly);

(2) care settings (e.g. care homes, nursing homes, residential care, long-term care);

(3) arts and culture (e.g. arts, art-based, creative, culture, museum); and

(4) digital technology and cognitive health (e.g. digital, technology, tablet, dementia, cognitive impairment).

Boolean operators were used to combine search terms, and truncation was applied where appropriate to capture variations in terminology. In addition, the reference lists of included studies were manually screened to identify further relevant publications not captured through database searching.

3.3 Inclusion and Exclusion Criteria

Clear inclusion and exclusion criteria were established a priori to ensure transparency and consistency in study selection. Studies were included if they met the following criteria:

(a) involved older adults aged 65 years or over;

(b) described a digital arts intervention in which artistic or cultural content was central and delivered, mediated, or supported through digital technology;

(c) reported outcomes related to health, well-being, cognition, quality of life, engagement, or social interaction; and

(d) were conducted in care homes, nursing homes, or residential care settings, or included care home residents as a clearly identifiable subgroup.

Studies involving community-dwelling older adults were included only where findings specific to care home residents were reported separately or could be meaningfully extracted. A wide range of study designs—including qualitative, quantitative, and mixed-methods research—were eligible for inclusion, reflecting the exploratory and developmental nature of the field.

Studies were excluded if they focused exclusively on pharmacological interventions, purely clinical or biomedical outcomes, or technology-based training programmes lacking meaningful artistic or cultural content. Interventions in which digital technology was the primary focus and arts elements were incidental, instrumental, or absent were also excluded, in line with the conceptual definition adopted in this review.

3.4 Data Extraction and Quality Appraisal

Data extraction was guided by a structured framework designed to capture both descriptive and explanatory information relevant to realist synthesis. Extracted data included study characteristics (author, year, country),

study design, care setting, participant demographics, type of digital arts intervention, digital platform or technology used, duration and mode of delivery, reported outcomes, and key findings. Particular attention was paid to descriptions of implementation processes, facilitation strategies, and participant experiences, as these elements are critical for identifying mechanisms and contextual influences.

Quality appraisal was undertaken to assess methodological strengths and limitations across the included studies. However, consistent with realist review principles and Nafis's original approach, studies were not excluded solely on the basis of methodological quality. Instead, issues such as small sample sizes, absence of control groups, or reliance on self-reported outcome measures were documented and taken into account during synthesis. This approach recognises that valuable insights into mechanisms and context can be derived even from studies with methodological limitations, particularly in emerging and interdisciplinary research fields.

3.5 Data Synthesis

Data synthesis proceeded in two interrelated stages. First, a narrative synthesis was conducted to summarise and compare study characteristics, intervention types, digital platforms, and reported outcomes. Studies were grouped into broad categories of digital arts interventions, such as digital art viewing and discussion, art-based cognitive applications, and digital reminiscence tools. This stage provided an overview of the scope, diversity, and methodological characteristics of the evidence base.

Second, a realist synthesis was undertaken to identify and refine Context–Mechanism–Outcome (CMO) configurations. Through iterative comparison across studies, patterns were identified linking specific contexts (e.g. care home culture, staff facilitation, group versus individual delivery), underlying mechanisms (e.g. reminiscence, emotional engagement, social facilitation, empowerment), and observed outcomes (e.g. improved mood, enhanced social interaction, perceived cognitive stimulation). These CMO configurations were used to develop explanatory insights into how and why digital arts interventions function within care home settings and for whom they are most effective.

4. Results

4.1 Overview of Included Studies

The systematic search and screening process identified a heterogeneous body of literature examining digital arts interventions for older adults with cognitive impairment. The included studies comprised qualitative research, mixed-methods feasibility and pilot studies, quasi-experimental designs, and a small number of controlled trials. Overall, the evidence base was characterised by its exploratory nature, reflecting the relatively early stage of development of digital arts interventions within care home research. Sample sizes were generally small, most commonly ranging between 10 and 50 participants, and intervention durations varied considerably, from single-session engagements to programmes delivered over several weeks or months.

Methodological diversity was a defining feature of the included studies. Qualitative research typically focused on participants' lived experiences, perceived benefits, and acceptability of digital arts activities, while quantitative components most often assessed outcomes such as mood, engagement, social interaction, or quality of life using a combination of validated and study-specific measures. Mixed-methods designs were prevalent, integrating interviews, observational data, and pre–post outcome assessments. However, few studies employed randomised controlled designs, and reporting of blinding or allocation procedures was rare.

Although the review focused on care home settings, studies conducted exclusively within residential care environments constituted a minority of the overall literature. A larger proportion of research involved community-dwelling older adults, reflecting the practical, ethical, and organisational challenges associated with conducting research in care homes, including issues related to consent processes, staffing constraints, and residents' fluctuating health and cognitive status. Nevertheless, the care home-based studies provided particularly valuable insights into feasibility, implementation, and contextual influences, making them central to the aims of this review.

Across studies, participant populations varied widely in terms of cognitive status, encompassing individuals with mild cognitive impairment as well as those living with moderate to advanced dementia. This variability contributed to heterogeneity in reported outcomes and limited the comparability of findings across studies. Despite these limitations, recurring patterns emerged across the evidence base that informed the subsequent realist synthesis.

4.2 Types of Digital Arts Interventions

The digital arts interventions identified in the review could be broadly grouped into four overlapping categories. The first category consisted of digital museum and gallery-based interventions, which enabled participants to view artworks from museum collections via tablets or touchscreen devices. These interventions often incorporated guided discussion prompts, contextual information, and reflective or creative activities, and were commonly delivered in group settings with facilitation by care staff or researchers.

The second category comprised art-based cognitive applications that embedded artistic elements—such as colour, form, imagery, and aesthetic themes—within structured cognitive tasks. These interventions aimed to stimulate cognitive processes such as attention, memory, or executive functioning while maintaining an emphasis on enjoyment and emotional engagement. Compared with conventional cognitive training programmes, these applications placed greater emphasis on visual richness and affective resonance.

A third category included digital reminiscence and storytelling tools, which used historical images, artworks, music, and cultural artefacts to evoke memories and stimulate conversation. These interventions were particularly prevalent in studies involving people living with dementia, where reminiscence-based approaches are widely recognised for supporting identity, communication, and emotional well-being.

Finally, several studies described hybrid interventions that combined digital arts activities with traditional, non-digital creative practices. Examples included pairing digital art viewing with hands-on art-making, writing activities, or facilitated group discussion. These hybrid approaches sought to integrate digital tools into existing care practices rather than replacing established routines. Across all categories, tablets and touchscreen devices were the most commonly used platforms, reflecting their accessibility, portability, and ease of use for older adults. More advanced technologies, such as virtual reality, were rarely employed, likely due to concerns regarding usability, cost, and potential sensory overload in care home populations.

4.3 Key Digital Arts Applications

Among the identified interventions, Armchair Gallery emerged as one of the most extensively examined applications within care home settings. Designed specifically for older adults, including those with dementia, this programme provides digital access to museum artworks accompanied by structured facilitation materials, discussion prompts, and optional creative activities. Studies consistently reported high levels of engagement and acceptability among residents, along with perceived improvements in mood, social interaction, and overall quality of life. Group-based delivery and active facilitation were frequently identified as critical contributors to positive outcomes.

ArtOnTheBrain represented a complementary approach, integrating art viewing with structured cognitive exercises. Targeted primarily at older adults with cognitive impairment or early-stage dementia, this application combined aesthetic engagement with cognitive stimulation. Reported outcomes included enhanced attention, enjoyment, and perceived mental activation. While robust quantitative evidence of cognitive improvement was limited, qualitative findings highlighted increased motivation and sustained engagement, suggesting that the artistic framing of cognitive tasks may enhance participation.

Other identified interventions included digital reminiscence applications featuring historical photographs, artworks, and music, as well as interactive platforms allowing users to create or manipulate digital images. Several museum-led digital outreach initiatives were also identified, in which cultural institutions collaborated with care homes to deliver curated digital content. However, many of these initiatives were evaluated only through small-scale pilot studies or descriptive reports, limiting the strength of conclusions that could be drawn. Overall, the range of applications demonstrated considerable innovation but limited standardisation in content, delivery, and evaluation.

4.4 Reported Outcomes

Reported outcomes across the included studies clustered into several broad domains. Psychological well-being outcomes—such as mood, enjoyment, and emotional expression—were among the most consistently reported benefits. Many studies described reductions in apathy or agitation and increases in positive affect during or immediately following intervention sessions. Quality of life outcomes were also commonly reported, particularly in care home-based studies, with modest but meaningful improvements noted in areas related to social engagement and participation in activities.

Social interaction emerged as a central outcome, particularly in group-based interventions. Digital arts activities frequently facilitated conversation, shared attention, and social bonding among residents, as well as between residents and care staff. In contrast, evidence relating to cognitive outcomes was more mixed. Some studies reported improvements in attention, memory, or perceived cognitive stimulation; however, these findings were inconsistent and often relied on non-standardised or self-reported measures. Few studies demonstrated sustained cognitive effects over time, highlighting the need for cautious interpretation of cognitive claims.

Usability and acceptability were also frequently reported, especially in feasibility and pilot studies. Overall, digital arts interventions were well received by older adults with cognitive impairment, provided that appropriate support, facilitation, and adaptation to individual abilities were in place.

4.5 Context–Mechanism–Outcome Patterns

The realist synthesis identified several recurring Context–Mechanism–Outcome (CMO) patterns that help explain how digital arts interventions operate within care home settings. Reminiscence emerged as a key

mechanism, activated through engagement with familiar artworks, cultural references, and historical imagery. This mechanism supported identity continuity, emotional expression, and communication, particularly among residents living with dementia.

Social facilitation was another prominent mechanism. Interventions delivered in group contexts and actively supported by facilitators were more likely to promote interaction, shared meaning-making, and sustained engagement. In contrast, minimal facilitation or isolated use of digital tools was less likely to generate meaningful outcomes. A further mechanism identified was empowerment and mastery, occurring when participants developed confidence in using digital devices and navigating content. This sense of competence contributed to increased motivation, enjoyment, and positive self-perception.

Crucially, these mechanisms were highly context-dependent. Supportive care home cultures, flexible facilitation practices, and alignment between intervention content and residents' interests and abilities were essential contextual conditions enabling positive outcomes. Together, these findings underscore the importance of considering not only the digital arts intervention itself, but also the social and organisational contexts in which it is implemented.

5. Conclusion

The conclusion of the article highlights the growing promise of arts-based digital interventions (ABDIs) for enhancing the well-being of older adults with cognitive impairment in care homes. These interventions, which combine artistic and cultural content with digital technology, offer a potential solution to improve residents' quality of life, cognitive function, emotional well-being, and social engagement. The review underscores that ABDIs have demonstrated positive outcomes, such as enhanced mood, reduced apathy, and increased social interaction, particularly when implemented in group settings with proper facilitation.

However, the article also reveals significant gaps in the existing literature, including the heterogeneity of intervention designs, inconsistent outcome measures, and a lack of a unified theoretical framework to explain how these interventions work across diverse contexts. The review emphasizes the importance of moving beyond simplistic effectiveness-focused evaluations and adopting a more comprehensive approach that considers the mechanisms through which ABDIs operate, as well as the contextual factors that influence their success.

The review calls for more rigorous, theory-driven research to better understand the factors that contribute to the success of ABDIs, such as staff facilitation, care home culture, and individual resident characteristics. It also stresses the need for standardized outcome measures and a clearer conceptualization of ABDIs to advance the field. Ultimately, the review suggests that while ABDIs hold considerable potential, further research is required to optimize their design, implementation, and evaluation to ensure they can be effectively integrated into care homes for the benefit of older adults with cognitive impairment.

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