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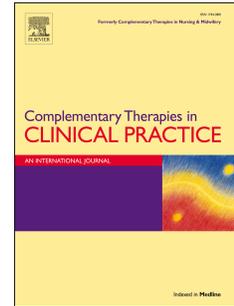
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Doll therapy for dementia sufferers: a systematic review

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4 **Doll therapy for dementia sufferers: a systematic review**

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8 **ABSTRACT**

9 Dementia affects more than 47.5 million people worldwide, and the number is expected to continue to
10 increase as the population ages. Doll therapy is an emerging nonpharmacologic management strategy
11 for patients with advanced dementia, especially in patients with challenging behaviours. A total of 12
12 published studies (mainly cohort and observational studies) were identified and discussed in this
13 systematic review. In most instances, cognitive, behavioural and emotional symptoms were alleviated
14 and overall wellbeing was improved with doll therapy, and dementia sufferers were found to be able
15 to better relate with their external environment. Despite the relative paucity of empirical data and
16 ethical concerns, we are of the opinion that doll therapy is effective for dementia care, is well-aligned
17 with the ethos of person-centred care and should be applied in the management of dementia patients.
18 Future research should include more robust randomized controlled trials.

19 Keywords: dementia, doll therapy, nonpharmacologic, wandering, behaviour

20

21 1. INTRODUCTION

22 Dementia is an important medical condition affecting some 47.5 million people worldwide, and the
23 World Health Organisation (WHO) expects the number to increase to 75.6 million by the year 2030
24 [1]. Dementia carries a significant disease burden and is overwhelming for both the sufferer,
25 caregivers and families [2]. This is an even greater problem in the advanced stages of dementia as
26 patients develop behavioural and psychological symptoms of dementia (BPSD). BPSD are associated
27 with increased burden of care, higher levels of carer stress, anxiety and depression and increased
28 morbidity, rates of institutionalization and mortality of patients [3].

29 Latest International Psychogeriatric Association (IPA) guidelines suggest that a variety of
30 nonpharmacologic measures, e.g. reminiscence therapy, music therapy and multisensory therapy can
31 be effective in reducing agitation, anxiety and challenging behaviours in patients with dementia [4].
32 Elderly are especially prone to the side effects of medications and repeated use of pharmacologic
33 agents such as typical antipsychotics can cause accelerated cognitive decline, increased risk of falls
34 and extrapyramidal symptoms [5].

35 Doll therapy is an emerging nonpharmacologic management strategy for patients with advanced
36 dementia. It is a person-centred and person-driven therapy and involves behaviours like holding,
37 talking to, feeding, cuddling or dressing an anthropomorphic doll [6]. Despite the relative paucity of
38 empirical data, we are of the opinion that doll therapy is effective, well-aligned with the ethos of
39 person-centred care and should be applied in the management of dementia patients. A systematic
40 review, which has not been done hitherto, is therefore timely and necessary to generate hypotheses for
41 further research.

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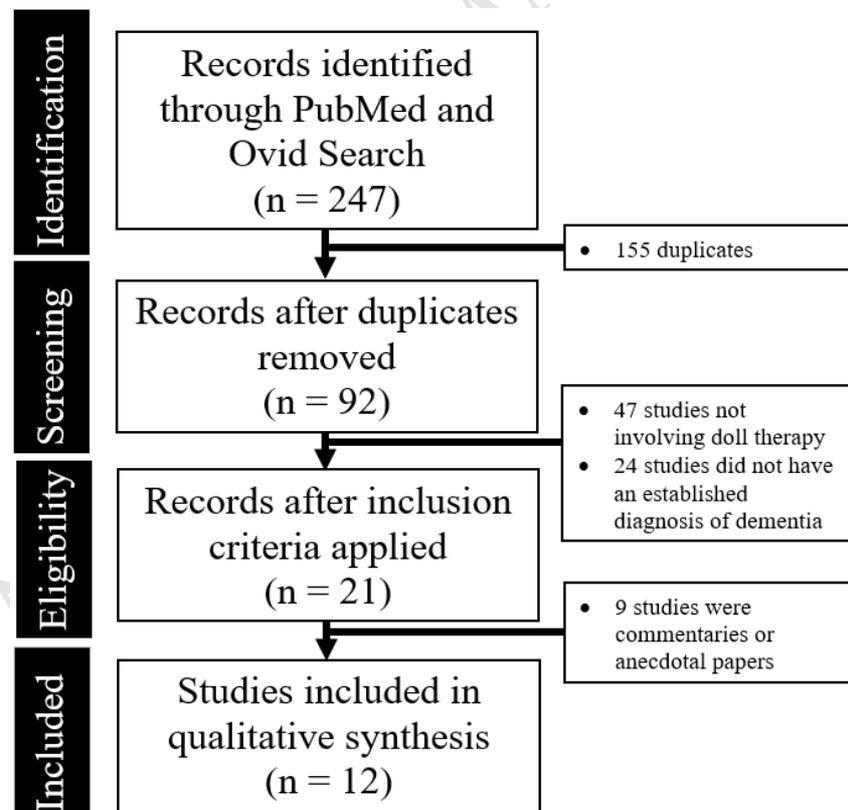
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45 **2. METHODS**

46 A literature search was conducted in accordance with PRISMA guidelines. Using the keywords [doll
47 OR doll therapy OR empathy doll] AND [dementia OR Alzheimer's], a preliminary search on the
48 PubMed and Ovid database yielded 247 papers published in English between 1-Jan-1980 and 1-May-
49 2016. All abstracts were crosschecked by two researchers to identify articles of interest. For relevant
50 abstracts, full articles were obtained, reviewed and also checked for references of interest.

51 Full articles were obtained for all selected abstracts and again independently reviewed by both
52 researchers for inclusion. Any disagreement was resolved by discussion and consensus amongst three
53 researchers. The inclusion criteria for this review were: (1) original clinical trial (open, randomized or
54 controlled) or observational study of doll therapy and (2) study participants had an established clinical
55 diagnosis of dementia. Despite best efforts, a meta-analysis was not possible due to the heterogeneity
56 of study designs and generally subjective outcome measures.



57

58 **Fig 1.** PRISMA diagram showing the studies identified during the literature search and abstraction

59 process

60 3. RESULTS

61 A total of 12 published studies were included in this review. Notably, there was a paucity of
62 randomized controlled trials. Most published studies on doll therapy were cohort, case-control and
63 observational studies. The key study characteristics and findings were summarized in Table 1.

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64 **Table 1.** Characteristics of all studies included in this review (arranged alphabetically by first Author's last name)

Author, year, country	Study Design	Study Population	Conclusions
Alander, 2015, England [7]	A grounded theory approach was used, recruiting participants from three residential care homes. 5 participants took part in a focus group and 11 participants were interviewed individually.	16 participants (4 male and 12 female residents). 11 of them had dementia, 4 were actively using dolls.	Residents generally support the use of dolls, believing that dolls can have a positive impact on some users. Both doll and non-doll users felt that a doll promoted a sense of control as it represented ownership. It also gave them a sense of pride, purpose and bonding, and kept them occupied (protects against loneliness, boredom or isolation).
Bisiani, 2013, Australia [8]	A single case study. The case study used both qualitative and quantitative research design and methodology (Aged Care Funding Instrument) to evaluate well-being.	1 female participant, with moderately advanced Alzheimer's disease	Noticeable reduction in appearance of anxiety, panic, tremors, hyperventilation and searching behaviour; improved social interaction with staff and other residents and enhanced self-esteem following the introduction of doll therapy.
Cohen-Mansfield, 2010, United States [9]	Cohort study. Each participant was presented with 23 different, pre-determined stimuli.	193 nursing home residents (from 7 nursing homes) with dementia. Average age 86 years. 42 males and 151 females.	Residents preferred life-like dolls to less life-like and animal-shaped ones. Residents had significantly longer engagement, greater attentiveness, and significantly more positive attitude with social stimuli than with nonsocial stimuli.
Ellingford, 2007, England [10]	Retrospective audit. Comparisons involved auditing three key variables: residents' (i) positive and (ii) negative behaviour, recorded by staff in their daily communication records; and (iii) incidences of aggressive behaviour (both physical and verbal) and (iv) antipsychotic use over a 6-month period (3 months pre- and 3 months post-doll therapy).	Sixty-six residents' (with dementia) case notes were examined (34 doll users and 32 non-doll users)	Significant improvement in all of the behavioural measures as recorded by staff. Increased positive behaviours in doll users and decreased negative behaviours and incidences of aggression. No significant change in use of antipsychotics.

Fraser, 2008, England [11]	Grounded theory interviews with 8 health professionals on 2 occasions	8 health professionals (two psychologists, two qualified nurses, two unqualified care workers, one psychiatrist, one occupational therapist). All of them had either three months' experience of working in a care setting where dolls had been used therapeutically, or had worked with at least two elderly with dementia who had used dolls therapeutically for at least six months.	The health professionals interviewed generally felt that doll therapy could address a number of psychological needs for dementia patients, including attachment, comfort, communication and interaction.
Green, 2011, United States [12]	Cohort study. Staff observations of patients' behaviours and haloperidol use were recorded in a log book.	115 patients admitted to a psychogeriatric unit over a period of 3 months. 43 males and 72 females. Mean age 69 years. 29 of the patients had an order for haloperidol as necessary.	Patients who engaged in doll therapy were less likely to require haloperidol compared to those who did not.
James, 2006, England [13]	Cohort study. Dolls and teddy bears were introduced into an Elderly Mentally Ill (EMI) home as part of a non-pharmacological intervention. The impact of the toys was assessed on five domains over a 12-week period.	33 residents with dementia offered either doll or teddy bear. 13 chose to use a doll and 1 chose a teddy bear.	General well-being was increased for residents who engaged with dolls. Noted greater activity, interaction and happiness. Doll therapy did not worsen of any residents, but improved the well-being of some residents.
Mackenzie, 2006, England [14]	Cohort study. Interaction of doll users was monitored by staff over a 3 to 6 week period. Staff care were asked to complete a 5-item questionnaire.	37 residents with dementia (from two homes) were given the opportunity to choose a doll. 14 residents chose a doll (2 males and 12 females).	35% of carers reported some conflicts amongst residents over ownership of the doll. However, carers did reflect that well-being of residents who used the doll was either 'a little better' (30%) or 'much better' (70%). Noted residents who engaged with dolls had less agitation and were more amenable to personal-care activities
Minshull, 2009, Scotland [15]	Cohort study. Unstructured doll therapy session conducted by an	9 residents of a dementia assessment ward.	Noted significant increase in well-being for all 9 residents who engaged in doll therapy.

	occupational therapist once a week for 1 month. The Bradford Dementia Group Well-being Profiling Tool was used to assess well-being pre- and post-therapy.		
Pezzati, 2014, Italy [16]	Controlled trial. 5 patients who have been treated with doll therapy for at least 24 months, while 5 patients who have never had doll therapy (control).	10 patients with dementia (1 male and 9 females, age range 72 to 94). Residents of a Special Care Unit for Alzheimer's disease in an Italian nursing home.	Measures of the relational dimension with the environment, such as gaze direction, behaviours of exploration and caregiving were promoted in advanced dementia patients who engaged with doll therapy. The study suggests clinically significant improvements in the ability of advanced dementia patients to relate with the external environment
Stephens, 2013, England [17]	Focused ethnography. 30 hours of observation were completed over a period of 2 months.	21 residents with dementia and 27 staff members of a care home were observed.	Patients with dementia would often carry a plastic doll that resembled a young baby. Attachment was an important need that could be addressed by the use of dolls. Realistic dolls (thought to be a baby) were preferred by residents.
Tamura, 2001, Japan [18]	Cohort study. Patients were presented with 3 dolls by an occupational therapist and their reactions were observed and recorded.	13 patients with dementia (3 males and 10 females), in a long-term care facility. Average age 90.2 years. All had Alzheimer's disease.	'Life-like' baby dolls were generally preferred ('made of silicone' and with 'texture of a real baby'). Engagement with dolls usually happens within 90 seconds. More women than men engaged with dolls.

66 4. DISCUSSION

67 *Benefits of doll therapy*

68 There is some evidence that supports the positive effects of doll therapy in dementia care, but these
69 tend to be subjective and anecdotal in nature [19–22]. One study noted a ‘reduction in agitation,
70 aggression and wandering’ in institutionalized dementia patients with doll therapy [21]. Another
71 reported pro-social and behavioural therapeutic gains with dolls and concluded that: ‘if the person
72 with dementia smiles, claps their hands [...] shows delight [...] when they have a doll in their arms
73 [...] how can I allow myself to say the activity is not acceptable?’ [22] It was also reported in one
74 study that allowing dementia patients to carry a teddy bear was helpful in reducing aggression and
75 challenging behaviour [20].

76 More controlled trials were conducted in the UK, which used the Likert scale to measure levels of
77 activity, agitation and happiness with doll therapy. A study provided 30 toys (15 dolls and 15 teddy
78 bears) to a dementia care home and used a mixed methods design to collect observational data from
79 staff caring for dementia sufferers [13]. It was found that the residents preferred dolls over teddy in 93%
80 of the cases, and the majority of the 14 residents who participated in this study generally appeared to
81 be less anxious, more interactive, content and active. Similar findings were reported in a replicated
82 study that used similar data collection methods in four dementia care homes in Newcastle upon Tyne
83 [10]. From examining the case notes of 66 residents (34 intervention and 32 control subjects) over a
84 period of 6 months (3 months prior and 3 months after the implementation of doll therapy), the
85 researchers found significant improvements in ‘positive behaviour’. Another study, which applied the
86 Bradford Dementia Group Wellbeing Profiling tool, reported similar benefits with doll therapy [15].
87 Majority of dementia sufferers experienced increased wellbeing, as quantified by reduced agitation,
88 mood improvement, increased appetite and a reduction in wandering.

89 Away from the Newcastle Challenging Behaviour Service in the UK, trials have also been conducted
90 in a Special Care Unit for Alzheimer’s disease in an Italian nursing home [16]. Ten patients were
91 recruited; five patients have been exposed to doll therapy for 24 months while the other five never.

92 Situations of separation from a known figure and the “Strange situation” were recreated. Through
93 recording and analysing these sessions through an observational grid, it was found that measures of
94 the relational dimension with the environment, such as gaze direction, behaviours of exploration and
95 caregiving were promoted in these patients with advanced dementia. The study suggests clinically
96 significant improvements in the ability of advanced dementia patients to relate with the external
97 environment [16].

98 Studies examining the benefits of doll therapy have also been conducted in Japan [18,23]. The authors
99 report positive results and one study that [18] used 3 different doll types found more life-like dolls to
100 be better received by dementia patients as patients were more interested in caring for it. Both studies
101 support the clinical role of doll therapy as the patients appeared ‘much happier and less agitated’ after
102 the dolls were presented [18,23].

103 *Theoretical basis*

104 John Bowlby’s attachment theory [24] has been a central tenet used to explain the possible benefits of
105 doll therapy [25]. Attachment has long been identified as a fundamental psychological need in
106 dementia patients, due to the vulnerability and powerlessness they experience as a result of their
107 chronic advancing disease [26]. The observed parent fixation, in the way dementia sufferers
108 continually search for their parents, has been postulated to be an expression of their attachment need
109 [27]. The searching behaviour displayed could be attributed to the insecurity and anxiety feelings that
110 confront dementia patients, especially when the environment appear unfamiliar and threatening, and
111 they thus seek security from family in order to feel safe. If their attachment needs are not met in times
112 of vulnerability, dementia patients can quickly become distressed and have diminished personal well-
113 being [27].

114 With attention to the ‘doll’, a comfort object, transitional object, or security blanket is often used by
115 children as it imbues them with greater security in an uncertain or unfamiliar environment, especially
116 when separated from their parents [28]. In human childhood development, soft toys, blankets or even

117 repetitive behaviours or phrases can be used by children as a transitional object during times of
118 anxiety, uncertainty or fear [29].

119 These psychological and psychoanalytic theories provide some helpful theoretical underpinnings for
120 the potential therapeutic benefits of dolls for dementia sufferers.

121 *Limitations and controversies*

122 There are a number of limitations to this systematic review. These studies were small and mainly pilot
123 or exploratory studies. They tend to be qualitative and subjective in nature, with predominantly
124 narrative accounts of success. Their findings albeit positive were not supported by validated outcome
125 measures or rigorous qualitative research methods. This makes the results prone to observer bias and
126 confirmation bias. In most cases, only observational indices were used owing to a lack of standardized
127 or validated tools for assessing sociality, affect and other dynamics related attachment outcomes in
128 dementia patients. Today, research into the benefits and knowledge of doll therapy are still in the
129 early stages of infancy, and these early studies, with its strong positive findings, should inspire further
130 rigorous empirical research.

131 Another limitation to the generalizability of our findings is that doll therapy may not work for every
132 dementia patient, as it has been hypothesized to differ based on the meaning the doll has for each
133 individual patient [30], and at least require the recognition of the doll as an anthropomorphic,
134 relational subject by the patient [31].

135 The implementation of doll therapy may also be challenging and may raise several ethical concerns.
136 In one study [14], it was reported that '13% of carers recorded misgivings with the study', with
137 comments that doll therapy was 'demeaning', 'patronising' or 'babyish'. However, carers who
138 observed the dolls being used were less likely to have these concerns, suggesting that due education
139 and information may allay caregivers' concerns. Separately, 35% of carers also reported that there
140 were issues in establishing the ownership of dolls, with a few conflicts occurring between residents.
141 With regard to the ethical challenges, doll therapy remains a contentious issue as highlighted by
142 Kitwood's malignant social psychology [32]. Doll therapy can be perceived to be infantile,

143 compromising to one's dignity and degrading to the personhood of dementia sufferers. However,
144 while some may argue that providing a doll to a person living with dementia has the potential to
145 infantilise [33], or involve an element of deceit [34], there is evidence to suggest the contrary. Doll
146 therapy has the potential to recapture the personhood of dementia patients, as asserted by Kitwood's
147 ideology of Positive Person Work [32] and the very ethos of person-centredness in gerontological
148 nursing [35].

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149 **5. CONCLUSION**

150 Dementia is a debilitating disease. People living with dementia have the same, if not greater need for a
151 fulfilling attachment, and doll therapy appears to satisfy some of these needs quite admirably. As
152 highlighted by the systematic review, preliminary evidence demonstrate that doll therapy builds a
153 therapeutic bond, promotes social behaviour, provides sensory stimulation and improves
154 communication as dementia sufferers are able to better relate with their external environment. Doll
155 therapy also offers relative advantages over pharmacologic and other nonpharmacologic interventions,
156 e.g. art, music and multisensory therapy as it is low-cost, convenient and does not necessarily require
157 a skilled therapist to be effective. However, there is a lack of robust randomized controlled trials to
158 support the clinical efficacy of doll therapy. Further research involving more rigorous study designs,
159 larger sample sizes and objective outcome measures is warranted.

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162 No conflict of interest to declare. The authors alone are responsible for the content and writing of the
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