

ORIGINAL RESEARCH

Effect of doll therapy on wandering symptoms in patients with dementia: A preliminary clinical observation

Lijuan Wang,* Qin Song, Yaping Pan, Zongli Zhang, Cuicui Zhai, Zhongwei Guo

Tongde Hospital of Zhejiang Province, Zhejiang Mental Health Center, No 234 Gucui Road, Hangzhou, Zhejiang, China

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ABSTRACT

Wandering is a neuropsychiatric symptom of dementia, and it is associated with adverse consequences. Doll therapy (DT) is a non-drug intervention for reducing distressing behaviors among people with dementia. The current study was conducted to determine the effects of DT on wandering in patients with dementia. A one-group including 40 patients with severe dementia was included to measure the impact of DT. The Chinese Revised Algase Wandering Scale-Community Version (CRAWS-CV) was used to evaluate patients each weekend. Results revealed that patients exhibited a clear improvement in CRAWS-CV scores over 4 weeks, especially eloping behavior, meal time walking, pacing, random pattern and aimless pattern scores. The current findings indicate that DT is beneficial for dementia patients with wandering.

Key Words: Dementia, Wandering, Doll therapy

1. INTRODUCTION

Wandering is a neuropsychiatric symptom of dementia, the occurrence rate exceeds 60% particularly among moderate to severe dementia.^[1] Wandering can lead to a series of adverse consequences, such as falling, getting lost and even death. Also, wandering can increase emotional burden to caregivers and the potential for civil tort claims.^[2,3] Therefore, finding reliable intervention methods for relieving wandering is an important task.

The theoretical model of need-driven, dementia-compromised behavior conceptualizes wandering as the results of combination of patient's inability to express themselves and the caregiver's inability to understand the patient's needs. Therefore, wandering may be a physical or emotional response when they are unable to meet their needs.^[4] Recent

evidence suggests that wandering is not just a static or simple behavior and is more likely to reflect the instinctive needs of patients. For example, Graham^[5] proposed that wandering reflects an intention to be alive and to grow. Brittain et al.^[6] considered that wandering may be a state of being threatened, which needs to be dealt with immediately. Therefore, intervention measures based on individual patients' needs may have clinical benefits.^[7]

Doll therapy (DT) is an important intervention approach, coming from attachment theory. The purpose of attachment theory is to reduce anxiety and agitation in patients with dementia.^[8] DT has been applied to patients with advanced dementia for improving happiness, activity and overall well-being.^[9] Several studies have reported that DT improves neuropsychiatric symptoms of advanced dementia. Bisiani and

* **Correspondence:** Lijuan Wang; Email: 13958033192@139.com; Address: Tongde Hospital of Zhejiang Province, Zhejiang Mental Health Center, No 234 Gucui Road, Hangzhou, Zhejiang, 310012, China.

Angus^[10] reported a single case with advanced Alzheimer's disease, in which DT intervention reduced the level of anxiety and agitation. Shin^[11] reported that the improvement of aggression, obsessive behaviors, and negative mood were observed after a DT intervention from a one-group study of 51 nursing home residents with dementia, supporting the benefits of DT for this patient population. Balzotti et al.^[12] also reported that DT ameliorated the symptoms of agitation compared with a gesture-verbal treatment intervention group after 12 weeks. However, the previous studies mentioned above did not evaluate the clinical effects of DT intervention on wandering in severe dementia, possibly because the patients had other coexisting symptoms besides wandering measured by the Neuropsychiatric Inventory. Besides, previous studies have not clarified the relationship between intervention time and efficacy. In the current study, we examined patients with severe dementia and implemented a DT intervention to evaluate wandering measured using the Chinese Revised Algate Wandering Scale (CRAWS-CV).^[13] In addition, we sought to clarify the relationship between intervention time and efficacy.

2. PARTICIPANTS AND METHODS

2.1 Participants

Forty patients were recruited from January 2019 through June 2021 at Zhejiang Mental Health Center, China. All patients met the following criteria: (1) diagnosed with dementia according to the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition; (2) assessed as being in the severe stages of disease, defined as having a Mini-Mental State Examination score < 14; (3) CRAWS-CV score > 3. Patients with psychiatric illnesses or alcohol abuse were excluded.

The study was carried out in accordance with the Helsinki Declaration and the Ethics Committee of Tongde Hospital of Zhejiang Province approved our study. Written informed consent was obtained from each patient's legal guardian.

2.2 Treatment protocols

Dolls were selected in accordance with Mackenzie et al.'s^[14] guidelines for using dolls, and Chinese cultural traditions. The baby-like dolls weighed about 3 pounds, and were about 17 inches long. The soft skin of the doll is similar to that of a human, and also had realistic black hair. The dolls had a smiling facial expression showing friendship and peacefulness, and eyes that opened and closed. A variety of dolls were used to avoid confusion or disagreement between patients over the ownership of dolls.

All dolls were neatly placed on a big table in an activity room. Patients were free to choose their favorite doll. The operators, including psychosocial and caregiver staff, were trained to

follow the procedure described in a previous study:^[12] (1) An operator invited the patient holding the doll to a chair; (2) the operator interacted with the patient and doll about 5 to 10 minutes; (3) then the operator left the patient; (4) the patient interacted with the doll for approximately 30 minutes; (5) the operator returned and took back the doll. The whole DT took 40 minutes. The DT treatment was scheduled after 10 a.m. and 2 p.m. every day. The dolls were also presented to patients at other times when they had acute behavioral disturbance.

2.3 Assessments

Wandering was assessed using the CRAWS-CV scale.^[13] The CRAWS-CV is an effective evaluation tool used in Taiwan, which sensitivity is 83.6% and specificity 76.9% differing for wanderers and non-wanderers.^[13] The CRAWS-CV includes 38 items and nine factors: eloping behavior (EB), meal time impulsivity and temporal aspects (MI/Temp), getting lost inside the house (GLI), pacing (PACE), impulsivity (IMPUL), negative outcomes (NO), random pattern (RANDOM), getting lost outside the house (GLO), and aimless pattern (AIMLES). Each item of CRAWS-CV was scored on a four-point Likert scale (1 "never/unable" to 4 "always") definitely not a wanderer; wanders at times; definitely wanders, but it is not a problem; definitely wanders and it is a problem). At baseline, the first weekend, the second weekend, the third weekend and the fourth weekend, patients were assessed by a psychiatric professional.

2.4 Statistical methods

SPSS 19.0 statistical software package was used for data analysis. Data were described as means \pm standard deviation. One-way analysis of variance and least significant difference analysis were used. Differences were considered statistically significant if $p < .05$.

3. RESULTS

All 40 patients (23 males and 17 females) completed 4 weeks of clinical observation. Age range from 60 to 75 years, and the average age was 74.9 ± 6.6 years. The average scores of Mini-Mental State Examination scale was 9.6 ± 3.3 . At the end of the fourth week, total scores significantly decreased compared with baseline. From the first weekend, factor scores for EB (12.4 ± 2.6 vs 21.8 ± 4.1 , $p < .05$), MI (9.8 ± 2.5 vs 13.3 ± 3.6 , $p < .05$), PACE (6.8 ± 1.7 vs 12.3 ± 2.6 , $p < .05$), RANDOM (4.6 ± 1.4 vs 6.6 ± 2.1 , $p < .05$) and AIMLES (4.2 ± 1.4 vs 5.3 ± 1.8 , $p < 0.05$) decreased significantly compared with baseline. From the first weekend, scores for EB (16.9 ± 4.1 vs 21.8 ± 4.1 , $p < .05$), MI (11.6 ± 3.4 vs 13.3 ± 3.6 , $p < .05$), PACE (9.7 ± 2.2 vs 12.3 ± 2.6 , $p < .05$) and RANDOM (5.7 ± 1.9 vs 6.6 ± 2.1 , p

< 0.05) decreased significantly. From the second weekend, IMPUL, NO or GLO scores between the fourth weekend and baseline ($p > .05$). (see Table 1)

Table 1. Changes of CRAWs-CV scores before and after intervention

Items	Baseline	The first weekend	The second weekend	The third weekend	The fourth weekend	F	p
Total scores	83.2 ± 8.6	71.9 ± 7.9 [*]	65.4 ± 7.8 ^{**#}	61.8 ± 7.1 ^{**#*}	59.5 ± 7.3 ^{**#*}	80.265	.00
EB	21.8 ± 4.1	16.9 ± 4.1 [*]	14.3 ± 3.1 ^{**#}	13.2 ± 2.8 ^{**#}	12.4 ± 2.6 ^{**#*}	49.896	.00
MI/Temp	13.3 ± 3.6	11.6 ± 3.4 [*]	10.4 ± 3.1 [*]	9.9 ± 2.6 ^{**#}	9.8 ± 2.5 ^{**#}	9.077	.00
GLI	8.5 ± 3.3	8.5 ± 3.2	8.2 ± 3.1	7.8 ± 3.2	7.7 ± 3.0	0.610	.656
PACE	12.3 ± 2.6	9.7 ± 2.2 [*]	8.3 ± 1.8 ^{**#}	7.5 ± 1.7 ^{**#}	6.8 ± 1.7 ^{**#}	44.263	.00
IMPUL	7.3 ± 2.8	7.1 ± 2.9	7.0 ± 3.0	6.9 ± 2.9	6.8 ± 3.1	0.222	.926
NO	3.3 ± 0.6	3.2 ± 0.7	3.2 ± 0.8	3.2 ± 0.7	3.2 ± 0.6	0.293	.882
RANDOM	6.6 ± 2.1	5.7 ± 1.9 [*]	5.2 ± 1.7 [*]	4.8 ± 1.5 ^{**#}	4.6 ± 1.4 ^{**#}	8.886	.00
GLO	4.8 ± 1.9	4.6 ± 1.9	4.4 ± 1.7	4.3 ± 1.8	4.1 ± 1.9	0.825	.511
AIMLES	5.3 ± 1.8	4.7 ± 1.7	4.6 ± 1.6 [*]	4.3 ± 1.5 ^{**}	4.2 ± 1.4 ^{**}	2.912	.023

Notes. EB: eloping behavior; MI/Temp: meal time impulsivity and temporal aspects; GLI: getting lost inside the house; PACE: pacing; Impul: Impulsivity; NO: negative outcomes; GLO: getting lost outside the house; AIMLES: aimless pattern. ^{*}Comparison with baseline; [#] Compared with the first weekend; ^{*}Compared with the second weekend.

4. DISCUSSION

In the current study, we examined the effects of DT on wandering based on a sample of institutionalized patients with dementia. Our results revealed that dementia patients exhibited a clear improvement in CRAWs-CV scores over 4 weeks, particularly in EB, MI/Temp, PACE, RANDOM and AIMLES scores. This finding is consistent with previous reports. Shin^[11] examined the effects of DT on 51 nursing home residents with dementia. After DT intervention, the following symptoms of these residents were significantly improved, aggression, wandering, negative mood, and negative physical appearance, and so on. And the interaction time between these residents with other individuals was also increased. Moyle et al.^[15] also reported that DT was associated with emotional comfort and calming effects for dementia patients, and provided with purposeful activity. DT can improve the patient's ability to cope with surrounding environment.^[16] Taken together with previous findings, our current results indicated that DT can help dementia patients become more calm and further adapt to surrounding environment, thus improving wandering.

The current results also revealed that wandering significantly improved by the first weekend, suggesting that DT quickly improved the wandering of dementia, in accord with findings reported by Tamura et al.^[17] In that study, during the intervention, an occupational therapist presented patients with two soft plastic dolls and one silicon doll for 90 seconds. And then those patients were observed for 60 minutes. They

showed four different reactions, no reaction, close observation, taking care of the doll and communication with other patients. The dolls were also delivered to the main hall after dinner. It was found that patients whose attention was caught by the doll were interested in caring for it. These patients feel happier and their agitation symptom decreased when the dolls were presented. Sumioka et al.^[18] manufacture a robot for interactive DT using a minimal design approach. The researchers developed HIRO, which was a baby-sized robot with an abstract body representation without facial features. They investigated whether participants would continue to interact with it for 5 min positively even after taking them from a staff member with whom they were familiar. Participants who interacted with HIRO for 5 min showed positive attitudes toward them. They treated the robots as real infants, took care of them, sing to them, lift them up, kissed them, and rocked them. Some participants fed the robot, changed its clothes and put it to bed, as if they recalled appropriate responses to children's typical needs and displayed them. Pezzati et al.^[16] reported that, during the DT intervention including progressive exposure, interaction, and familiarity with the doll, patients will establish an attachment relationship to the doll, so as to reduce the abnormality of emotion and behavior. Bisiani and Angus^[10] considered that DT was a therapeutic tool when patients respond to attachment-related needs, because dolls can let patients re-experience the past attachment emotional experience, in which the need for protection and security was met. Thus, DT may bring patients

into an emotional condition that meets the internal needs of patients with dementia.^[19]

LIMITATIONS

The current study had a limitation that should be considered. We did not conduct a control study, but only a single group longitudinal intervention study. Because patients in the same ward typically participate in activities together, it is difficult to carry out a fully controlled study. In the future, comparative studies should be carried out in multiple wards.

5. CONCLUSION

In the current preliminary clinical observation, we found that DT can effectively improve the wandering symptoms of dementia patients, which takes effect in one week, and the curative effect is more significant with the extension of intervention time. In this way, DT benefits dementia patients

with wandering symptoms.

AUTHOR STATEMENT CONTRIBUTORS

Lijuan Wang conceptualized, designed the study and implemented. Zhongwei Guo carried out the initial analyses, drafted the initial manuscript and revised. Qin Song, Yaping Pan, Zongli Zhang, Cuicui Zhai implemented this study and collected data.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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