

Analysis of the Impact of Regular Assisted Bathing on the Mental Health of Elderly Individuals in Home-Based Care

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ABSTRACT

Seniors receiving home-based care often face challenges with bathing. Uncomfortable bathing experiences can negatively affect their psychological well-being. From December 2016 to June 2024, we provided regular assisted bathing services to 8,000 elderly individuals in the bathing station. In July 2024, we conducted follow-up assessments using the Geriatric Depression Scale to evaluate changes in their quality of life and depression levels. 30 elderly participants completed the questionnaire and participated in interviews. Results indicated that before receiving assisted bathing, their average GDS score was 13, reflecting mild depressive symptoms. After long-term assisted bathing, the average score decreased to 10.83, indicating a reduction of 2.17 points and approaching a normal range for depression. Notably, Seniors living alone experienced the most significant psychological benefits.

KEYWORDS

assisted bathing; elderly individuals; home-based care; depression; Geriatric Depression Scale

1 Introduction

With the accelerated aging process in China, the elderly population has grown from 26.26 million in 1960 to 200 million in 2022. According to United Nations projections, China entered an aging society in 2001, and will transition to a super-aging society by 2034. This demographic shift places increasing care-giving pressures on families and communities. Simultaneously, seniors who cannot manage self-care often experience feelings of guilt, anxiety, and depression (Gong & Ning, 2017). Personal hygiene, particularly bathing, poses significant challenges for many elderly individuals. Studies show that bathing-related disability among elderly individuals has an annual incidence rate of 14.9% (Berlau et al. 2011). These risks underscore the importance of senior-friendly bathing facilities. Community-based bathing centers address these challenges by offering safe and accessible bathing services.

The potential benefits of assisted bathing extend beyond physical safety. Research indicates that a warm bath before bedtime can reduce depression levels among elderly individuals (Tai et al., 2021), and regular bathing is inversely associated with depression history in older adults (Yamasaki et al., 2023). Additionally, higher levels of social participation have been strongly correlated with improved mental health, subjective well-being, and life satisfaction in the elderly (Zhang et al., 2012). These findings suggest that long-term engagement in assisted bathing programs can positively impact both the physical and mental health of senior individuals. To further explore the relationship between depression levels and assisted bathing, we conducted a retrospective study. From December 2016 to June 2024, The team provided regular assisted bathing services to 8,000

elderly individuals in the bathing station. In July 2024, we launched a follow-up assessment to evaluate the impact of these services on their physical and mental health.

2 Method

2.1 Design

Data were collected using a combination of questionnaires and field observations to understand the impact of assisted bathing on the mental health of the seniors of different living arrangements.

2.2 Participant selection

Randomized cluster sampling was used in this experiment. Senior were categorized into three groups based on their living arrangements: living alone, living with a spouse, and living with a non-spouse. All participants were aged 65 and above. The elderly living alone were individuals living independently, while those living with a spouse included only couples without other cohabitants. The group living without a spouse consisted of individuals cohabiting with non-spousal companions for an extended period. 10 individuals were randomly selected from each group, for a total of 30 individuals, and all selected individuals were required to be conscious, cognitively normal, and able to comprehend and answer the questionnaire independently or with the assistance of a member of the research team. A total of 34 questionnaires were completed and 4 invalid questionnaires were excluded, resulting in a utilization rate of 88.23%.

2.3 Procedure

The independent variable in this experiment was the living situation of the participants. Depression levels were assessed using the GDS, administered at the participants' homes by a member of the research team. To ensure accuracy, the research team member explained the purpose of the scale, read the questions aloud, clarified any confusion, and recorded responses to calculate the scores. Each participant completed the GDS twice: once to assess their current depression level after participating in the assisted bathing program and once as a retrospective evaluation of their depression level prior to joining the program.

The dependent variable in this experiment was the difference in depression scores between the two assessments, which indicated a change in the elderly person's level of depression. Higher scores indicate a greater change in depression levels before and after the bathing service, which suggests that the assisted bathing service improved the mental health of the elderly participants to a greater extent.

2.4 Geriatric Depression Scale

The experiment used the Geriatric Depression Scale(GDS) to assess the psychological health status of elderly participants(Kurlowicz & Greenberg, 2007). The scale consists of 30 questions, all of which can be answered with "yes" or "no."Completing both assessments takes approximately 20–25 minutes, using the same set of questions for both tests. The question order remains unchanged, and a research team member explains each question to ensure consistency. Participants respond about their feelings before and after the bathing experience to minimize interpretation errors. In terms of scoring, a range of 0-10 points is considered normal, 11-20 points indicates mild depression, and a score of 21-30 points signifies severe depression.

3 Result

3.1 Data analyze

The experiment involved 30 participants, including 19 females and 11 males. Female participants had an average pre-bath GDS score of 11.51 (SD = 5.96) and an average post-bath score of 9.64 (SD = 4.88), reflecting a decrease of 1.87 points. Male participants had an average pre-bath score of 14.75 (SD = 5.07) and a post-bath score of 12.55 (SD = 4.27), showing a decrease of 2.20 points. These results indicate that both male and female participants experienced reductions in depression levels following the assisted bathing program, with males showing a slightly greater decline. This difference may be attributed to males starting with higher initial depression levels ($M = 14.75$) compared to females ($M = 11.51$), resulting in a more noticeable improvement. Overall, the findings suggest that the impact of assisted bathing on alleviating depression is not influenced by gender differences.

In terms of age distribution, 24 participants were between the ages of 65 and 80, and 6 participants were over 80 years old. The majority of participants were in the 70–80 age range. For elderly individuals aged 65–80, the average pre-bath score was 11.79 (SD = 5.11), and the average post-bath score was 10.04 (SD = 4.36). For those over 80 years old, the average pre-bath score was 16.33 (SD = 7.14), and the average post-bath score was 13.11 (SD = 5.91). Overall, participants across all age groups experienced a decrease in depression levels following the assisted bathing service. Specifically, for the 65–80 age group, scores decreased by 1.75 points, while for those over 80 years old, scores decreased by 3.22 points. These results indicate that assisted bathing may help alleviate depression and improve well-being among elderly individuals, regardless of age group.

In terms of underlying health conditions, all participants were free from disabilities and primarily had chronic conditions such as hypertension, diabetes, or heart disease, which require long-term medication but do not affect their daily lives. There were minimal differences in the participants' underlying health conditions, allowing us to rule out any significant impact on the experimental results. According to data from the Nanjing Municipal Bureau of Statistics, the average residential area per person in Nanjing from 2002 to 2021 was 66.5 square meters (CEIC Data, 2021). Among the participants, two individuals had housing areas of 12 square meters, while the remaining 28 participants had housing areas greater than 66.5 square meters. Therefore, we can assume that the living conditions of the participants were comparable, eliminating the potential influence of housing conditions on the experiment results.

3.2 Result

The depression levels of elderly participants decreased after receiving the assisted bathing service. The average depression score decreased from 13.00 (SD = 5.57) to 10.83 (SD = 4.65), indicating a shift from mild depression to a near-normal state. Among the 30 valid data sets, 28 participants (93.33%) experienced a reduction in depression levels, while 2 participants showed no change. Additionally, 30% of participants demonstrated a significant reduction in their depression scores. Group results indicated differences in GDS score changes based on living arrangements. Elderly individuals living alone experienced the largest decrease, with an average reduction of 2.8 points, and 40% showed significant decreases (a reduction of 4 points or more). Those living with non-spousal companions showed a 2-point average reduction, with greater variability in score changes. In contrast, elderly individuals living with a spouse experienced the smallest decrease, averaging 1.7 points, with 70% having score changes of 1–2 points. Overall, individuals with higher pre-bath depression levels exhibited the most significant reductions in depression scores following the assisted bathing service.

4 Discussion

This experiment targeted elderly individuals who visited assisted bathing stations and employed stratified sampling to examine the relationship between community-assisted bathing and elderly mental health. The findings indicate that assisted bathing effectively reduces depression levels in the elderly, with the greatest benefits observed among those living alone and those living with non-spousal companions, compared to individuals living with a spouse. Consistent with previous research, assisted bathing has been shown to improve the psychological health of the elderly. The environment of the bathing stations, combined with opportunities for social interaction, helps alleviate psychological stress and enhance the mental well-being of elderly participants.

Previous studies have indicated that physical decline, a lack of social engagement, and the absence of family support are the primary causes of mental health issues in the elderly (Chen, 2023). Additionally, relevant research shows that most elderly individuals experience varying degrees of social loneliness, which is significantly linked to social support (Zhang et al., 2024). To improve the mental health of the elderly, efforts must be made in these three areas.

Bathrooms that are not adapted for elderly use pose a higher risk of chills or slips. According to data from China's National Health Commission, the incidence of falls resulting in death among individuals aged 65 and above is 58.03 per 100,000, making falls the leading cause of injury-related death among the elderly (National Clinical Research Center for Geriatric Diseases, 2024). Furthermore, due to poor balance and osteoporosis, elderly individuals are more likely to experience disabilities following a fall, severely impacting their quality of life. Research conducted between 2015 and 2018 revealed that the proportion of severe injuries increased with age. Among those who received emergency treatment, 22.49% required hospitalization, and 0.92% of cases resulted in death (Lu et al., 2021).

Community-assisted bathing stations provide a safer and more comfortable bathing environment for the elderly through senior-friendly renovations. These stations include professionally treated anti-slip floors, handrails, seats, and other facilities designed to prevent falls and injuries. However, relying solely on the assisted bathing stations is insufficient. It is equally important for elderly individuals and their families to prioritize slip prevention at home. A collaborative effort between the community and families is essential to ensure the bathing safety and well-being of the elderly.

Beyond addressing physical limitations, it is essential to enhance the senior's sense of social participation. Assisted bathing stations play a key role as service platforms within the framework of the country's neighborly and mutual-assistance policies. These stations encourage younger seniors to help older seniors and foster the formation of mutual aid groups for visiting the stations together. This increases the senior's social participation, enhances their confidence, and boosts their sense of self-efficacy by engaging in both giving and receiving support. As a result, negative emotions such as loneliness and helplessness are alleviated, and mental health improves.

To address the issue of insufficient family care, communities can create more professional eldercare positions and encourage family members to spend more time with their parents. By leveraging community-based care, the gap left by family care can be filled to a significant extent, reducing the care giving burden on family. Research indicates that elderly individuals with higher levels of disability are more susceptible to psychological issues; however, effective utilization of community resources can help mitigate these effects (Zhang & Li, 2018).

The research also revealed disparities in eldercare infrastructure between urban and rural areas. Urban areas often have concentrated elderly communities, making assisted bathing stations an effective solution for their needs. In contrast, rural areas often lack such concentrated communities, making it challenging to establish fixed assisted bathing stations. To address this, the research team

proposes assisted bathing vehicles as an alternative solution. These vehicles have senior-friendly bathrooms and a waiting area for social workers and healthcare staff to provide assistance. Most importantly, these mobile vehicles can visit elderly individuals' homes, overcoming the limitations of fixed stations and expanding access to care while supporting their mental health and well-being.

However, this study has several limitations. First, the relatively small sample size may limit the generalizability of the findings. Second, as the participants were from the same community, the results may not be representative of a broader range population. Lastly, the cognitive abilities and educational levels of participants could have influenced the results. Despite the research team's efforts to provide detailed explanations, some participants may not have fully understood or may have misinterpreted certain questions, potentially affecting the accuracy of their responses. Future studies should consider expanding the sample size to include elderly individuals from diverse regions and backgrounds to improve the representativeness of the findings.

About the Author

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References

- [1] Gong D., & Ning J. (2017, June 9). analysis on psychological well-being of disabled elders in the healthy aging and medical model-qualitative evidence from Beijing Qinan Community. *Aging Research*. https://image.hanspub.org/Html/1-3140040_20915.htm
- [2] Berlau D. J., Corrada M. M., Peltz C. B., & Kawas C. H. (2011). Bathing as a potential target for disability reduction in the oldest old. *American Journal of Public Health*, 101(2), 200–201. <https://doi.org/10.2105/AJPH.2010.300020>
- [3] Tai Y., Obayashi K., Yamagami Y., Kurumatani N., & Saeki K. (2021, June 24). Association between passive body heating by hot water bathing before bedtime and depressive symptoms among community-dwelling older adults. *The American Journal of Geriatric Psychiatry*. <https://www.sciencedirect.com/science/article/abs/pii/S106474812100364X>
- [4] Yamasaki S., Maeda T., & Horiuchi T. (2023, March). Association between habitual hot spring bathing and depression in Japanese older adults: A retrospective study in Beppu. *Complementary Therapies in Medicine*. <https://www.sciencedirect.com/science/article/pii/S0965229922001121>
- [5] Zhang Z., Zhang J., Sun J., & Xue C. (2012). The relationship between social participation, subjective well-being, and life satisfaction among retirees. *Chinese Journal of Clinical Psychology*, 20(6), 865–867.
- [6] Zhang Y., Wang Y., Xin Z., Fang J., Song R., Li H., Kuang J., Yang Y., & Wang J. (2024). Severity of loneliness and factors associated with social and emotional loneliness among the elderly in three districts in Shanghai. *Fudan University Journal of Medical Sciences*, 51(1), 1–11.
- [7] Chen, Yan. (2023). Analysis of Psychological Problems and Solutions for the Elderly in the Context of Aging. *Advances in Psychology*. <https://www.hanspub.org/journal/PaperInformation?paperID=77805>
- [8] Zhang Y., & Li J. (2018). Disability levels and mental health among the elderly: Age differences and the moderating role of community resources. *Learning and Exploration*(4), 65–72.
- [9] National Clinical Research Center for Geriatric Diseases. (2024). Preventing falls: Avoiding the "last fracture" of life. *Chinese University of Science and Technology*. <https://ncrcgdx.csu.edu.cn/info/1042/2886.htm>
- [10] Lu Z., Wang Y., Ye P., Er Y., & Duan L. (2021). Analysis on epidemiologic characteristics of falls in old people: Results from the Chinese National Injury Surveillance System, 2015–2018. *Chinese Journal of Epidemiology*, 42(1), 137–141.
- [11] CEIC Data. (2021). Residential area per capita, prefecture-level city, rural: Floor area of residential buildings per capita, rural Jiangsu, Nanjing. <https://www.ceicdata.com/zh-hans/china/residential-area-per-capita-prefecture-level-city-rural/floor-area-of-residential-building-per-capita-rural-jiangsu-nanjing>
- [12] Kurlowicz L., & Greenberg S. A. (2007). The Geriatric Depression Scale (GDS). In M. Boltz (Series Ed.) & S. A. Greenberg (Series Co-Editor), *Geriatric nursing protocols for best practice* (Issue No. 4, pp. 1 – xx). New York University College of Nursing.