

RESEARCH ARTICLE

Self-efficacy and attitudes of nurses providing oral care in geriatric care facilities: A cross-sectional study in Shanghai

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Funding information

Standardization Pilot Program of Shanghai Quality and Technical Supervision Bureau, Grant/Award Number: S18-04-017; Science and Technology Research Project of Health and Health Committee of Songjiang District, Grant/Award Number: 316

Abstract

Aims: To investigate nurses' self-efficacy and attitudes of providing oral care in geriatric care facilities (GCFs) and compare differences between individuals, facilities and countries.

Design: A cross-sectional and multicentre study.

Methods: Data were collected from 852 nurses in 42 GCFs using two scales, "Self-Efficacy for Providing Mouth Care" (SE-PMC) and "Attitudes for Providing Mouth Care" (A-PMC), and analysed using *t*-test and ANOVA.

Results: Totally 852 nurses (844 females, 99%) participated in this study with an effective response rate of 85.2%. Scores of SE-PMC and A-PMC of nurses varied significantly among GCFs with different sizes, types and years of establishment and differentiated among staff about the length of employment ($p < .05$). Nurses ($N = 434$) in North Carolina scored higher than nurses in Shanghai both in SE-PMC and A-PMC ($p < .05$). Establishment and implementation of Oral health promotion programmes were desired based on characteristics of different institutions and nurses' clinical ladder.

KEYWORDS

a cross-sectional study, attitude, geriatric care facilities, oral health, self-efficacy

1 | INTRODUCTION

Oral health is a primary global public health concern, with 46% of the world's population suffering from varying degrees of oral disease (Bernabe et al., 2020). The trend of declining oral function in older people should be especially noted in an ageing society (Lauritano et al., 2019). According to the fourth oral health epidemiological

survey report in China in 2017, the number of surviving teeth was 22.5, and the proportion of total edentulousness was 4.5%, periodontal health and oral hygiene were poor among the older persons aged 65–74 years (Yu et al., 2021).

Good oral health is a critical factor in healthy ageing, associated with general health, morbidity and mortality in older people (Lauritano et al., 2019). Many studies have reported that oral disease

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is a risk factor for cardiovascular disease, cancer, chronic respiratory disease and cognitive impairment, affecting overall health (Kang et al., 2020; Kumar et al., 2021; Zhang et al., 2021).

Caregivers in geriatric care facilities (GCFs) often meet with unique oral care challenges for residents (Goestemeyer et al., 2019). After admission, residents' oral health declined, combined with an increased risk of malnutrition (Schmalz et al., 2021). Researchers also further determined that oral frailty was associated with nutritional status among community-dwelling older people (Iwasaki et al., 2020). At the same time, many vulnerable residents who suffer from stroke or cognitive impairment have reduced swallowing ability, which further increases the risk of oral diseases (Chen et al., 2021). Therefore, adequate dental care for frail older persons, especially those with remaining teeth, is essential (Hoeksema et al., 2017).

Nevertheless, Hoben's study reports that 24% (7%–47%) of care providers in nursing homes lack knowledge, education or training in providing oral care, suggesting effective strategies desired to overcome barriers and increase facilitators in oral care (Hoben et al., 2017). Since dental care provided in GCFs in China was rarely reported, the healthcare staff's self-efficacy and attitude towards dental care also remained unknown. However, this knowledge gap needs to be filled out because proper measurement of self-efficacy and attitude could be presented as objective data that helps nursing administrators grasp the current situation and give evidence for care promotion programmes.

Oral health issues of Chinese older people are attracting growing attention recently (Liu et al., 2018). However, rare studies have focused on nurses' self-efficacy and attitude towards oral care in GCFs. In preliminary studies, our research team developed and psychometrically tested the Chinese Version of "Self-Efficacy for Providing Mouth Care" (SE-PMC) and "Attitudes for Providing Mouth Care" (A-PMC) created by Wretman et al. (2020), which can give an instrument for nurses' self-efficacy and attitude towards providing oral care in GCFs. Therefore, this study aimed to assess the baseline status of Chinese nurses' oral care self-efficacy and attitudes in GCFs and compare differences between individuals, facilities and countries.

2 | MATERIALS AND METHODS

2.1 | Study design and participants

This cross-sectional study was conducted using cluster sampling from February to March 2021. We calculated a sample size of 1,000 to allow for stratification by GCFs depending on an α of 0.05, a relative error of sampling of 3%, and a non-response rate of 10%. A proportional sampling method (10%) with a stratification factor of GCF was used to obtain a representative sample of nurses in all 42 GCFs in Shanghai. The inclusion criteria for participants were: (a) officially Registered Nurses in GCFs; (b) nursing experience in GCFs over 1 year; (c) informed consent and voluntary participation in this study. However, nurses who did not work in GCFs during

the survey period were excluded (off-site training or sick leave). A total of 1,000 nurses were obtained by using computer-generated random numbers.

2.2 | Questionnaire design

The Institutional Review Board of Shanghai General Hospital, affiliated with Shanghai Jiao Tong University, approved this study, and participants signed informed consent online. Data were collected using a set of questionnaires to evaluate Chinese nurses' oral care self-efficacy and attitudes in GCFs. The questionnaires covered two domains, including background information (age, gender, length of employment, etc.) and the Chinese Version of the SE-PMC and A-PMC scale. The Chinese Version of the SE-PMC and A-PMC scale was translated, culturally adapted and psychometrically tested in our previous study, originating from Wretman et al.'s research (2020), including 22 items, with adequate construct validity and reliability using exploratory and confirmatory factor analysis. The total Cronbach's coefficient of the Chinese Version of SE-PMC was 0.831, and the Cronbach's coefficients of the sub-dimensions of Promoting Oral Hygiene (POH), Providing Mouth Care (PMC) and Obtaining Cooperation (OC) were 0.906, 0.793 and 0.811 respectively. The total Cronbach's coefficient for the Chinese Version of A-PMC was 0.768, and the Cronbach's coefficients for the sub-dimensions of Care of Residents' Teeth (CPT) and Care of Own Teeth (COT) were 0.824 and 0.814 respectively.

2.3 | Data collection

From February to March 2021, 900 of the 1,000 Registered Nurses from 42 GCFs in Shanghai were recruited with a response rate of 90%. GCFs involved in this study mainly provided long-term medical care, rehabilitation promotion and hospice care to older persons unable to take care of themselves. Informed consent was obtained before the investigation. We issued an online survey to collect data via Wen Juanxing (www.wjx.cn). A total of 900 questionnaires were recovered in the study anonymously. Due to the considerate settings of the online survey system, there were no missing items from the submitted 900 questionnaires, but 48 of them were invalid (option selection all "1" or all "4"). Therefore, 852 questionnaires were valid, and the effective response rate was 85.2%.

2.4 | Statistical analysis

The statistical software SAS 9.4 (SAS, Cary, NC) was used to analyse the collected data. Continuous variables were displayed as mean with standard deviation or median with 25 percentile and 75 percentile. Age and length of employment of nurses were stratified by reference to the quartiles of the sample. Group differences were compared according to the self-rated scale status using *t*-test

or ANOVA for continuous variables. A statistically significant difference was accepted at a p -value $<.05$.

3 | RESULTS

3.1 | Characteristics of the sample

Table 1 shows the characteristics of the study sample. The average age of the 852 nurses who participated in the study was 30.27 ± 7.245 , with 99.1% female and only 0.9% male. The proportion of nurses working in institutions of a different type was similar, with 50.7% of nurses working in public GCFs and 49.3% in private GCFs. The average length of employment of participants in GCFs was 5.91 years.

3.2 | Differences of SE-PMC and A-PMC of nurses in GCFs about characteristics of institutions

Table 2 shows that scores of SE-PMC and A-PMC of nurses in public GCFs were higher than those of nurses in private GCFs and sub-dimensions of PMC, OC and CRT. Scores of SE-PMC and A-PMC of nurses in GCFs with less than 100 beds were higher than those

of nurses in GCFs with more than 100 beds and sub-dimensions of PMC, OC and CRT. Furthermore, data reflect SE-PMC of nurses in GCFs established in 10 years higher than those in GCFs established over 10 years and in sub-dimensions of PMC and CRT. The differences were statistically significant ($p <.05$).

3.3 | Differences of SE-PMC and A-PMC of nurses in GCFs about characteristics of individuals

Table 3 shows that no differences between SE-PMC and A-PMC were found about the age of nurses. However, nurses with different lengths of employment differ in SE-PMC. Nurses with 1–2 years and 3–4 years of work experience had higher SE-PMC scores than those with 5–8 years and ≥ 9 years of work experience, and the differences were statistically significant ($p <.05$).

3.4 | Comparison of SE-PMC and A-PMC of nurses in GCFs between Chinese and USA

Table 4 compares nurses' scores of SE-PMC and A-PMC between the USA and China. Overall, nurses ($n = 434$) in North Carolina nursing homes (Wretman et al., 2020) had higher scores than nurses ($n = 852$) in Shanghai, except in the sub-dimension OC.

TABLE 1 Characteristics of staff and settings ($n = 852$)

Variables	Total sample (mean \pm SD/ n , %)
Age	30.27 \pm 7.245
Gender	
Male	8 (0.9)
Female	844 (99.1)
Type of institution	
Public	432 (50.7)
Private	420 (49.3)
Experience of work	5.91 \pm 5.927

4 | DISCUSSION

In recent years, oral care has been highlighted in GCFs. Well-provided oral care should include care from the acute phase of hospitalization to the rehabilitation phase. Self-efficacy refers to an individual's expectation and perception of achieving a specified capability. Self-efficacy influences behaviour, cognition and emotional processes and is related to one's ability to cope with a particular task and confidence in accomplishing that task (Sheeran et al., 2016). Therefore, exploring caregivers' attention to oral care

TABLE 2 Differences of self-efficacy of providing mouth care (SE-PMC) and attitude of providing mouth care (A-PMC) of nurses in GCFs based on characteristics of institutions

Factors	Type of institutions		Size of institutions		Year of establishment of institutions	
	Public ($n = 432$)	Private ($n = 420$)	Bed number <100 ($n = 249$)	Bed number >100 ($n = 603$)	<10 years	≥ 10 years
SE-PMC (11 items)	2.93 \pm 0.373*	2.92 \pm 0.375*	2.94 \pm 0.362*	2.87 \pm 0.389*	2.93 \pm 0.366*	2.87 \pm 0.392*
Promoting oral hygiene	3.19 \pm 0.449	3.19 \pm 0.471	3.19 \pm 0.405	3.21 \pm 0.490	3.18 \pm 0.445	3.23 \pm 0.480
Providing mouth care	2.79 \pm 0.559*	2.76 \pm 0.566*	2.79 \pm 0.539*	2.65 \pm 0.619*	2.79 \pm 0.563*	2.62 \pm 0.615*
Obtaining cooperation	2.82 \pm 0.505*	2.80 \pm 0.511*	2.82 \pm 0.493*	2.74 \pm 0.559*	2.80 \pm 0.506	2.74 \pm 0.564
A-PMC (11 items)	3.00 \pm 0.346*	3.00 \pm 0.352*	3.02 \pm 0.337*	2.96 \pm 0.349*	3.00 \pm 0.338	2.96 \pm 0.352
Care of residents' teeth	2.83 \pm 0.463*	2.83 \pm 0.465*	2.85 \pm 0.427*	2.73 \pm 0.527*	2.83 \pm 0.466*	2.72 \pm 0.521*
Care of own teeth	3.18 \pm 0.420	3.18 \pm 0.443	3.20 \pm 0.407	3.19 \pm 0.449	3.17 \pm 0.412	3.20 \pm 0.454

Note: Variables with * means significant differences between groups (t -test at $p <.05$).

TABLE 3 Differences of SE-PMC and A-PMC of nurses in GCFs based on characteristics of nurses

Factors	Age of nurses				Length of employment				Multiple comparison
	18–25 (n = 216)	26–29 (n = 271)	30–33 (n = 172)	34–64 (n = 193)	1–2 (n = 280)	3–4 (n = 176)	5–8 (n = 181)	≥9 (n = 200)	
SE-PMC (11 items)	3.24 ± 0.459	3.18 ± 0.425	3.19 ± 0.502	3.23 ± 0.499	3.25 ± 0.470*	3.22 ± 0.433*	3.14 ± 0.455*	3.21 ± 0.496*	a, b>c, d
Promoting oral hygiene	2.76 ± 0.633	2.71 ± 0.562	2.60 ± 0.602	2.68 ± 0.606	2.80 ± 0.600	2.73 ± 0.598	2.66 ± 0.576	2.53 ± 0.598	a>c, d; a, b, c>d
Providing mouth care	2.81 ± 0.534	2.77 ± 0.508	2.74 ± 0.582	2.74 ± 0.558	2.85 ± 0.548*	2.78 ± 0.523*	2.68 ± 0.486*	2.72 ± 0.579*	a>c, d
Obtaining cooperation	2.94 ± 0.390	2.89 ± 0.372	2.84 ± 0.369	2.88 ± 0.396	2.97 ± 0.383*	2.91 ± 0.388*	2.83 ± 0.357*	2.82 ± 0.378*	a>c, d
A-PMC (11 items)	2.75 ± 0.493	2.78 ± 0.467	2.72 ± 0.527	2.80 ± 0.538	2.82 ± 0.510	2.77 ± 0.489	2.76 ± 0.488	2.69 ± 0.513	
Care of residents' teeth	3.21 ± 0.440	3.17 ± 0.416	3.17 ± 0.487	3.21 ± 0.417	3.21 ± 0.451	3.17 ± 0.413	3.16 ± 0.454	3.20 ± 0.421	
Care of own teeth	2.98 ± 0.346	2.98 ± 0.341	2.95 ± 0.352	3.00 ± 0.348	3.02 ± 0.346	2.97 ± 0.345	2.96 ± 0.357	2.95 ± 0.332	

Note: Variables with * means significant differences between groups (ANOVA at $p < .05$). About multiple comparisons in length of employment, a means 1–2; b means 3–4; c means 5–8; d means ≥ 9 .

needs is particularly important. In this study, we found that scores of SE-PMC and A-PMC of nurses varied significantly between GCFs with different sizes, types and years of establishment and differentiated among staff about the length of employment. Moreover, Chinese nurses in GCFs experienced a slightly lower self-efficacy and attitude towards oral care than data reported in a previous study (Wretman et al., 2020).

Literature has shown that multiple factors (institutional factors, nurse characteristics, etc.) could affect self-efficacy and attitudes. In Weening-Verbree's study, the most frequent barriers to providing oral care were lack of support from dental staff, residents with cognitive impairment and lack of education (Weening-Verbree et al., 2021), consistent with results in Göstemeyer's systematic review (Göstemeyer et al., 2019). In this study, nurses' self-efficacy was higher in GCFs established for a shorter time. The possible reason is that the newly established GCFs may have an advantage over facilities that have been established for more than 10 years in terms of infrastructure, staffing and standardized routines. We also noted that the self-efficacy and attitude of nurses in providing oral care in institutions with <100 beds were better than those in larger institutions, possibly because the smaller size of the institution might encourage closer cooperation and more substantial support among staff. As the literature mentioned, nurses could have better self-efficacy and a positive attitude in a congenial and harmonious working environment (Iwanow et al., 2021; Yang et al., 2021).

Interestingly, nurses of different ages did not show statistical significance in self-efficacy and attitude. However, nurses aged 18 to 25 years had higher self-efficacy scores than other age groups. Nurses in the age group of 34–64 years had higher attitude scores than the other age groups, implicating senior nurses appear to have more stable and responsive attitudes towards oral care. Notably, the overall SE-PMC varied with the length of employment. Nurses with lower levels of seniority showed better self-efficacy, especially in the "Providing Mouth Care" and "Obtaining Cooperation" dimensions. This may be explained by their optimistic approach to effectively regulating and facilitating professional practice behaviours in clinical settings. Nurses' attitudes towards providing oral care did not show statistical differences concerning the length of employment.

An innovative attempt was additionally achieved in this study to compare the SE-PMC and A-PMC of Chinese and American nurses. The US data were taken from a study of 434 nurses in 14 GCFs in North Carolina by Dr Wretman et al. (2020). Interesting results showed differences between Chinese and American geriatric facilities, with American nurses showing better self-efficacy and attitudes. Similar to Wretman's findings, we likewise found consistently higher scores reported in non-profit GCFs (public facilities) and nursing providers with lower seniority. The possible explanation may be that nurses in non-profit institutions have better access to continuing nursing education opportunities and are equipped with more specialized knowledge and technical skills. In another study in Canadian long-term care facilities, 80% of caregivers felt knowledgeable and confident in providing oral

TABLE 4 Comparison of scores of SE-PMC and A-PMC of nurses between Chinese and American GCFs

Factors	Chinese nurses (n = 852)	American nurses (n = 434)	t	p-value
SE-PMC (11 items)	2.89 ± 0.38	3.03 ± 0.38	-6.247	<.001*
Promoting oral hygiene	3.21 ± 0.47	3.32 ± 0.46	-4.025	<.001*
Providing oral hygiene	2.69 ± 0.60	2.87 ± 0.64	-4.870	<.001*
Obtaining cooperation	2.77 ± 0.54	2.71 ± 0.56	1.839	.066
A-PMC (11 items)	2.98 ± 0.35	3.19 ± 0.38	-9.620	<.001*
Care of residents' teeth	2.77 ± 0.50	3.10 ± 0.48	-11.494	<.001*
Care of own teeth	3.19 ± 0.44	3.29 ± 0.47	-3.686	<.001*

Note: Variables with * means significant differences between groups (t-test at $p < .05$).

care, although they still desired to improve their skills to overcome barriers and needed appropriate oral care materials (Keboa et al., 2019).

Understanding the knowledge and beliefs about oral health and debility of nursing staff in hospitals, communities and long-term care facilities helps improve administrators' awareness. Training courses tailored to nursing staff's existing weaknesses and needs with different seniority are needed. Notably, it is reported that dental specialty teams can improve caregivers' knowledge and attitudes towards oral health (Janssens et al., 2018). Dental providers should be integrated into GCFs (Hugo et al., 2021), which would be valuable in addressing barriers to providing daily oral hygiene and supporting the continuous integration of oral health care into general care. About how to improve oral care skills, it is also a topic for nurses to communicate and learn from dentists who practise dental specialty care regularly.

4.1 | Limitations of the study

We made a great effort in data recruitment. However, data collected were self-reported, possibly leading to measurement subjectivity because of recall bias. Moreover, the current research did not include the relationship between the scores of SE-PMC and A-PMC of nurses and residents' oral health outcomes. Thus, our next step is to measure oral care directly by looking at a randomized number of patients' mouths to investigate the completion of oral care and complication rates of lack of oral care.

5 | CONCLUSIONS

This study takes the initiative to investigate nurses' oral care self-efficacy and attitudes in GCFs in China and to compare differences between individuals, facilities and countries. In future studies, we will devote ourselves to enhancing nurses' clinical oral care practice in GCFs. The characteristics of self-efficacy and attitudes of GCF nurses towards oral care in Shanghai can give a rich reference value for constructing and implementing oral health promotion programmes.

6 | RELEVANCE TO CLINICAL PRACTICE

Administrators need to pay attention to the relatively low status of self-efficacy and attitude of nurses in oral care provision in GCFs compared to US institutions. A reasonable curriculum should be developed according to the characteristics of the dimensions related to our study. Furthermore, cultivating a learning atmosphere and mechanism is preferred to assist career planning. In this way, nursing staff might enhance professional interest and stimulate enthusiasm towards elder care.

AUTHOR CONTRIBUTIONS

Zhang Lingjuan designed the study. Chen Lan and Chen Wenyao collected the data, designed and developed the database. Li Xiachen carried out data analyses and Gu Liyan produced the initial draft of the manuscript. Zhang Lingjuan contributed to drafting the manuscript. All authors have read and approved the final submitted manuscript.

ACKNOWLEDGEMENTS

The authors appreciate all the staff who participated in the research funded by a grant from the Standardization Pilot Program of Shanghai Quality and Technical Supervision Bureau (S18-04-017) and the Science and Technology Research Project of Health and Health Committee of Songjiang District (Oral health promotion strategies for the elderly population in long-term care institutions in Songjiang District-316).

CONFLICT OF INTEREST

All authors declare there are no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data presented in this study are available on request from the corresponding author.

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REFERENCES

- Bernabe, E., Marcenes, W., Hernandez, C. R., Bailey, J., Abreu, L. G., Alipour, V., & Kassebaum, N. J. (2020). Global, regional, and national levels and trends in burden of oral conditions from 1990 to 2017: A systematic analysis for the global burden of disease 2017 study. *Journal of Dental Research*, 99(4), 362–373. <https://doi.org/10.1177/0022034520908533>
- Chen, L., Gu, L., Li, X., Chen, W., & Zhang, L. (2021). Oral health matters in cognitive impaired aged residents in geriatric care facilities: A cross-sectional survey. *Nursing Open*, 8(2), 792–798. <https://doi.org/10.1002/nop2.683>
- Goestemeyer, G., Baker, S. R., & Schwendicke, F. (2019). Barriers and facilitators for provision of oral health care in dependent older people: A systematic review. *Clinical Oral Investigations*, 23(3), 979–993. <https://doi.org/10.1007/s00784-019-02812-4>
- Hoben, M., Clarke, A., Huynh, K. T., Kobagi, N., Kent, A., Hu, H., & Yoon, M. N. (2017). Barriers and facilitators in providing oral care to nursing home residents, from the perspective of care aides: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 73, 34–51. <https://doi.org/10.1016/j.ijnurstu.2017.05.003>
- Hoeksema, A. R., Peters, L. L., Raghoobar, G. M., Meijer, H. J. A., Vissink, A., & Visser, A. (2017). Oral health status and need for oral care of care-dependent indwelling elderly: From admission to death. *Clinical Oral Investigations*, 21(7), 2189–2196. <https://doi.org/10.1007/s00784-016-2011-0>
- Hugo, F. N., Kassebaum, N. J., Marcenes, W., & Bernabé, E. (2021). Role of dentistry in global health: Challenges and research priorities. *Journal of Dental Research*, 100(7), 681–685. <https://doi.org/10.1177/0022034521992011>
- Iwanow, L., Jaworski, M., Gotlib, J., & Panczyk, M. (2021). A model of factors determining nurses' attitudes towards learning communicative competences. *International Journal of Environmental Research and Public Health*, 18(4), 1544. <https://doi.org/10.3390/ijerph18041544>
- Iwasaki, M., Motokawa, K., Watanabe, Y., Shirobe, M., Inagaki, H., Edahiro, A., & Awata, S. (2020). Association between oral frailty and nutritional status among community-dwelling older adults: The Takashimadaira study. *Journal of Nutrition Health & Aging*, 24(9), 1003–1010. <https://doi.org/10.1007/s12603-020-1511-4>
- Janssens, B., Vanobbergen, J., Lambert, M., Schols, J. M. G. A., & De Visschere, L. (2018). Effect of an oral healthcare programme on care staff knowledge and attitude regarding oral health: A non-randomized intervention trial. *Clinical Oral Investigations*, 22(1), 281–292. <https://doi.org/10.1007/s00784-017-2110-6>
- Kang, J., Wu, B., Bunce, D., Ide, M., Aggarwal, V. R., Pavitt, S., & Wu, J. (2020). Bidirectional relations between cognitive function and oral health in ageing persons: A longitudinal cohort study. *Age and Ageing*, 49(5), 793–799. <https://doi.org/10.1093/ageing/afaa025>
- Keboa, M., Beaudin, A., Cyr, J., Decoste, J., Power, F., Hovey, R., & Macdonald, M. E. (2019). Dentistry and nursing working together to improve oral health care in a long-term care facility. *Geriatric Nursing*, 40(2), 197–204. <https://doi.org/10.1016/j.gerinurse.2018.10.002>
- Kumar, S., Jha, P., Negi, B., Haidry, N., Kulkarni, P., Gulati, S., & Muttu, J. (2021). Oral health status and treatment need in geriatric patients with different degrees of cognitive impairment and dementia: A cross-sectional study. *Journal of Family Medicine and Primary Care*, 10(6), 2171–2176. https://doi.org/10.4103/jfmpc.jfmpc_2481_20
- Lauritano, D., Moreo, G., Della Vella, F., Di Stasio, D., Carinci, F., Lucchese, A., & Petrucci, M. (2019). Oral health status and need for oral care in an aging population: A systematic review. *International Journal of Environmental Research and Public Health*, 16(22), 4558. <https://doi.org/10.3390/ijerph16224558>
- Liu, C., Cao, Y., Lin, J., Ng, L., Needleman, I., Walsh, T., & Li, C. (2018). Oral care measures for preventing nursing home-acquired pneumonia. *The Cochrane Database of Systematic Reviews*, 9(9), D12416. <https://doi.org/10.1002/14651858.CD012416.pub2>
- Schmalz, G., Denkler, C. R., Kottmann, T., Rinke, S., & Ziebolz, D. (2021). Oral health-related quality of life, oral conditions, and risk of malnutrition in older German people in need of care—a cross-sectional study. *Journal of Clinical Medicine*, 10(3), 426. <https://doi.org/10.3390/jcm10030426>
- Sheeran, P., Maki, A., Montanaro, E., Avishai-Yitshak, A., Bryan, A., Klein, W. M. P., & Rothman, A. J. (2016). The impact of changing attitudes, norms, and self-efficacy on health-related intentions and behavior: A meta-analysis. *Health Psychology*, 35(11), 1178–1188. <https://doi.org/10.1037/hea0000387>
- Weening-Verbree, L. F., Schuller, A. A., Cheung, S., Zuidema, S. U., Van Der Schans, C. P., & Hobbelen, J. S. M. (2021). Barriers and facilitators of oral health care experienced by nursing home staff. *Geriatric Nursing*, 42(4), 799–805. <https://doi.org/10.1016/j.gerinurse.2021.04.012>
- Wretman, C. J., Zimmerman, S., Ward, K., & Sloane, P. D. (2020). Measuring self-efficacy and attitudes for providing mouth care in nursing homes. *Journal of the American Medical Directors Association*, 21(9), 1316–1321. <https://doi.org/10.1016/j.jamda.2020.02.007>
- Yang, Z., Liu, S., Dai, M., & Zhang, H. (2021). Knowledge, attitude and practice of advance care planning among nursing interns: A mixed-methods approach. *Nurse Education in Practice*, 56, 103183. <https://doi.org/10.1016/j.nepr.2021.103183>
- Yu, L. X., Wang, X., Feng, X. P., Tai, B. J., Hu, D. Y., Wang, B., & Lin, H. C. (2021). The relationship between different types of caries and periodontal disease severity in middle-aged and elderly people: Findings from the 4th National Oral Health Survey of China. *BMC Oral Health*, 21(1), 229. <https://doi.org/10.1186/s12903-021-01585-1>
- Zhang, T., Yang, X., Yin, X., Yuan, Z., Chen, H., Jin, L., & Ye, W. (2021). Poor oral hygiene behavior is associated with an increased risk of gastric cancer: A population-based case-control study in China. *Journal of Periodontology*, 1–15. <https://doi.org/10.1002/JPER.21-0301>. Online ahead of print.

How to cite this article: Gu, L., Chen, L., Li, X., Chen, W., & Zhang, L. (2023). Self-efficacy and attitudes of nurses providing oral care in geriatric care facilities: A cross-sectional study in Shanghai. *Nursing Open*, 10, 202–207. <https://doi.org/10.1002/nop2.1295>