

Research Progress on Knowledge, Attitude, and Practice of Comprehensive Geriatric Assessment (CGA) among Chinese Nurses

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Abstract

This article aims to review existing research on the knowledge, attitude, and practice (KAP) of Chinese nurses toward comprehensive geriatric assessment (CGA), analyze its influencing factors, and offer recommendations for promoting CGA implementation among Chinese nurses. Findings indicate that Chinese nurses possess moderate CGA knowledge with deficiencies in certain domains, generally positive attitudes constrained by time, manpower, and economic factors, and weak clinical practice. Influencing factors include individual characteristics, training, staffing, multidisciplinary collaboration, informatization, and policy support. Recommendations include tiered training based on nurses' individual characteristics, expanded coverage, optimized staffing, enhanced teamwork, informationization or artificial intelligence technology, and integration with insurance and performance incentives. These measures are intended to systematically advance CGA and improve geriatric nursing quality in China.

Keywords

Comprehensive Geriatric Assessment, CGA, Nurses, Knowledge-Attitude-Practice, KAP, Influencing Factor

1. Introduction

The process of aging of the Chinese population is accelerating. By the end of 2024, the population aged 60 and above in China will reach 310.31 million, accounting for 22.0% of the total population [1]. The number of disabled elderly people in

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China is also increasing continuously [2]. This poses a serious challenge to the healthcare system. At the same time, the elderly often experience multimorbidity, a high prevalence of geriatric syndromes, and complex functional status, making the traditional disease-centered model inadequate to meet their needs [3]. Moreover, their health issues are characterized by the intertwining of physiological aging and disease, significant psychosocial factors, and the fact that functional status predicts prognosis better than diagnosis alone [4]. These realities call for stronger geriatric assessment skills from clinical nurses, and Comprehensive geriatric assessment (CGA) is exactly the fitting approach under China's aging.

Based on the Knowledge-Attitude-Practice (KAP) theory, knowledge serves as the foundation for behavioral change, attitude provides the driving force for behavioral change, and practice represents the ultimate goal [5] [6]. A systematic understanding of the current status and influencing factors of Chinese nurses' KAP regarding CGA is of great significance for promoting the standardized application of CGA in China.

2. The Definition and Value of Comprehensive Geriatric Assessment (CGA)

Comprehensive geriatric assessment (CGA) is a multidimensional, interdisciplinary diagnostic process to determine the medical, psychological and functional capabilities of a frail elderly person in order to develop a coordinated and integrated plan for treatment and long-term follow up [7]. The core assessment dimensions of CGA typically include: physical function, cognitive function, psychological state, nutritional status, social support, polypharmacy, and geriatric syndromes [8].

The value of CGA is manifested in multiple aspects: at the individual level, CGA is supported by considerable evidence to facilitate coordinated care for older patients with frailty and complex needs [9]-[12]. At the system level, CGA can save costs, optimize resource allocation [13], support scientific decision-making [14], and enhance service efficiency in the medical field [15]. At the societal level, CGA promotes a paradigm shift from a "disease-centered" approach to a "function-centered" one, reflecting a patient-centered care philosophy [16] and supporting the strategy of healthy aging.

3. The Role and Importance of Nurses in the CGA

In the multidisciplinary team of CGA, nurses play an irreplaceable role. Research indicates that nurses undertake crucial functions throughout the entire CGA process: as initial screeners, nurses are often the first professionals to encounter elderly patients, and they are able to identify health issues that are often overlooked or taken for granted by the elderly [17]; as core assessors, there are numerous dimensions in CGA that are directly related to nursing, and existing research has found that assessments and nursing plan interventions led by nurses can maximize the independence of elderly individuals and enhance the quality of life for frail

elderly living in the community [18]; as coordinators, nurses in the multidisciplinary team of CGA, conducts a comprehensive assessment to coordinate the needs of various specialties, in order to provide individualized care [19]; as implementers of interventions, nurses are responsible for executing the post-assessment nursing plan. These roles all underscore the important position of nurses in the implementation of CGA.

4. Current Status of Chinese Nurses' Knowledge, Attitude, and Practice Regarding CGA

4.1. Current State of Knowledge on CGA

Existing survey studies among Chinese nurses indicate that their knowledge of CGA is moderate, with shortcomings in the knowledge dimensions of certain CGA. Gao *et al.* [20] conducted a survey on 184 nurses in geriatric ward of a tertiary hospital in Beijing using a self-designed CGA-KAP questionnaire (including 14 knowledge items, with a total score of 51 points, and a standard score ≥ 85 points for excellent), the results showed that the knowledge standard score was (82.79 ± 9.24) points, among which 43.0% were excellent, 55.4% were moderate, and 1.6% were failing, this indicates that the group of nurses surveyed in this study mainly had moderate knowledge of CGA. Hao [21] conducted a survey of 120 nurses from a tertiary hospital in Hebei Province using a self-designed CGA-KAP questionnaire. The results showed that the respondents scored the highest 15 points, the lowest 3 points, and the median 11 points (out of 16 points) in the knowledge section of CGA. Li *et al.* [22] surveyed 108 nurses from Hunan medical institutions before CGA training using a self-designed CGA-KAP questionnaire. The mean knowledge score was 77.16 ± 9.35 (standardized to 100), indicating a basic understanding of CGA theory but not yet reaching a good level. Lyu *et al.* [23] reported a self-rated CGA knowledge score of 3.90 ± 0.97 (out of 5) among 200 Shandong geriatric nurses, indicating moderate mastery.

At the same time, Chinese nurses have shortcomings in the knowledge dimensions of certain CGA. For instance, Gao *et al.* [20] found that mastery rates for "CGA target population" and "assessment objectives" were only 3.8% and 4.9%. Hao [21] reported higher correct rates for pressure ulcer causes (85.0%) and health assessment content (82.35%), but only 45.83% for psychological assessment methods, indicating uneven knowledge across dimensions. The survey [23] data from Shandong Province also revealed that 200 Shandong geriatric nurses knew the concept of CGA, they had blind spots in assessment tool selection, use, and result interpretation.

4.2. Current State of Attitudes toward CGA

Chinese nurses generally hold a positive attitude toward CGA, but have concerns regarding their willingness to implement it. Zhang Zheng *et al.* [24] conducted semi-structured interviews with 14 nurses from a tertiary hospital in Beijing who participated in CGA and found that nurses generally believed that CGA could help

them identify hidden health problems of patients (such as swallowing disorders, severe depression, and other issues that are difficult to detect with routine care), and drive the improvement of nursing quality. Zhong Jingzhi *et al.* [25] conducted a focus group interview with 13 elderly specialized nurses from Chongqing, which also showed that nurses rated the operability of the CGA scale as 7.6 ± 0.8 points (0 - 10 points, with 10 points indicating very easy operation), and all respondents expressed willingness to promote the scale.

Quantitative research further confirms this positive attitude. Gao *et al.* [20] found that the attitude standard score of Chinese elderly ward nurses towards CGA is (81.54 ± 11.30) points (converted from 100 points), with a pass rate of 96.2%, indicating that the vast majority of nurses hold a positive attitude. Li *et al.* [22] conducted a pre training survey on 108 nurses in Hunan medical institutions, and found that the standard score of nurses' attitude was as high as 79.58 ± 12.31 (after the full score of 100 was converted). According to a survey conducted by Hao [21] on 120 clinical nurses, the median attitude dimension of nurses towards CGA was 108 points (converted from a maximum score of 120 points).

However, Zhang *et al.* [24] revealed a core contradiction: nurses recognize CGA's value but face structural constraints—"no time to do evaluations," "no dedicated position," and "not making money" (N10). Quantitative data confirmed this: Lyu *et al.* [23] found that only 50.5% of institutions performed CGA, with nurses citing "assessment time" (64%), "insufficient multidisciplinary involvement" (62%), and "lack of reimbursement" (48%) as main barriers, highlighting the ideal-reality gap.

4.3. Current State of Practice on CGA

Overall, Chinese nurses' CGA practice remains weak. This survey of nurses in the geriatric wards in Beijing [20] shows that the overall level of CGA behavior of the respondents is low: their standard score for practicing CGA is only (59.72 ± 11.06) points, with an unqualified rate as high as 47.8%, and the excellent rate is 0%. Deng *et al.* [26] surveyed 390 institutions nationwide, finding only 55.1% conducted CGA-related work and 11.6% of CGA tasks were performed by nurses. Shen *et al.* [27] surveyed 164 Zhejiang institutions (96 nurses), revealing that only 12.5% of nurses "often or always" used CGA in clinical practice, while 47.9% used it "occasionally" and 39.6% "never or were unclear." These findings indicate that despite exposure to CGA, routine clinical application remains infrequent.

From the evaluation content of CGA, it can be seen that nurses' CGA practice mainly relies on single risk assessment, with insufficient comprehensive evaluation. Multiple studies have consistently shown that activities of daily living (ADL), risk of falls, risk of pressure ulcers, and pain are the most commonly assessed items in clinical practice [20] [22] [27], as these items are often included in the scope of routine nursing evaluation in hospitals.

From the format of CGA, paper-based forms remain prevalent: 39.5% of institutions use paper-only, 44.7% use a "paper + electronic" hybrid, and only 15.8% use fully electronic systems [26]. Dong *et al.* [28] reported on a CGA in-

formation platform used by 86 nurses to complete 3930 assessments, with a usability rating of 4.76 ± 0.53 (out of 5), indicating strong nurse acceptance of digital CGA tools.

From the perspective of the multidisciplinary collaboration in CGA, the team participation is insufficient. Lyu *et al.* [23] found that 62.0% of 200 Shandong geriatric nurses identified “insufficient MDT participation” as a primary implementation barrier. Zhang *et al.* [24] further revealed that while nurses aspire to serve as “connectors and supervisors” within the MDT, current multidisciplinary CGA practice lacks continuity.

5. Influencing Factors of Chinese Nurses’ Knowledge, Attitude, and Practice towards CGA

5.1. The Demographic Characteristics of the Nurses

There is controversy over the impact of age, professional title, and education on CGA knowledge level. Hao [21] found that nurses aged 31 - 40 scored higher in knowledge than those aged 21 - 30 and over 41 ($P = 0.045$), and supervisor nurses scored higher than nurse practitioners and nurses ($P = 0.015$). A survey of 108 clinical nurses using a self-designed CGA-KAP questionnaire revealed that nurses with a bachelor’s degree or higher had higher scores in the KAP standards of CGA compared to those with a diploma or lower education ($P < 0.035$) [22]. However, another KAP survey of 184 geriatric nurses on CGA did not find significant effects of age, professional title, and education level [20], which may be related to differences in sample composition.

Marital status and experience in caring for the elderly are newly discovered independent factors. Hao [21] showed that the total score of married nurses was higher than that of unmarried nurses ($P = 0.046$), and those with elderly care experience scored significantly higher than those without experience in all dimensions ($P < 0.01$). Nurses who have worked for 5 - 10 years are the main force in CGA practice, while newly hired nurses have lower awareness and practical experience.

5.2. Training Experience

Hao [21] found that the CGA training experience is an important factor affecting nurses’ KAP of CGA. Gao *et al.* [20] found that nurses who received training within one year had significantly higher practical standard scores than those who did not receive training (61.24 vs 55.54, $P = 0.002$); The knowledge scores of nurses in the base ward were significantly higher than those in the general ward (85.59 vs 81.91, $P = 0.021$). The training intervention study by Hao [21] showed that after 2 weeks of online training, the total CGA score of nurses increased from 149.09 ± 32.48 to 180.34 ± 26.49 ($P = 0.001$). Lyu *et al.* [23] confirmed that training is one of the strongest predictive factors for implementing CGA ($OR = 5.389$).

5.3. The Allocation of Nursing Human Resources

Nurse shortages and lack of dedicated CGA positions have constrained nurses’

CGA-related KAP development [29]. Xie *et al.* [30] surveyed 36 geriatric departments in Sichuan and found a positive correlation between nurse-to-bed ratio and CGA implementation ($\beta = 15.6$, $P = 0.03$), indicating that better staffing enables more comprehensive CGA. However, Liu *et al.* [31] reported that among 337 Shandong hospitals, the average nurse-to-bed ratio was only 0.39—far below the national standard of 0.6, with only 22.26% meeting the requirement. This severe shortage leaves nurses with no time for CGA. Zhang *et al.* [24] further revealed negative emotions stemming from this burden, with nurses stating they had “no time to conduct evaluations” and “no dedicated position” for CGA (N10), leading to frustration when CGA tasks are added to heavy workloads without support.

5.4. The Multidisciplinary Team (MDT) Collaboration

Lyu *et al.* [23] found that 62% of nurses listed “insufficient participation in multidisciplinary teams” as the main obstacle. The survey conducted by Gao [20] found that the participation of medical staff, pharmacists, and nutritionists in CGA resulted in low scores. As a result, nurses are unable to draw assessment knowledge from different professional perspectives such as nutritionists, pharmacists, and rehabilitation therapists from MDT discussions, and their knowledge structure is limited to traditional nursing categories. The interview conducted by Zhang *et al.* [24] revealed that the team lacks continuity and CGA finds it difficult to achieve a closed loop. It can be seen that there is a lack of interdisciplinary collaboration mechanisms in the implementation of CGA in Chinese medical institutions.

5.5. Information Technology for CGA

Information technology can significantly improve the efficiency of nurses implementing CGA [28], but the current penetration rate is extremely low. Deng *et al.* [26] showed that only 15.8% of institutions use pure electronic systems. At present, paper-based methods are still the main mode, which has limitations such as long processing time, strong subjectivity, insufficient standardization, and difficulty in dynamic continuous monitoring [32]. Nurses are prone to avoid using CGA due to fear of difficulties.

5.6. Supportive Policies and Systems for CGA

The main obstacles are the lack of medical insurance payment, economic benefits, and incentive systems. 48% of the surveyed nurses pointed out that CGA was not included in the scope of medical insurance reimbursement [23], and the assessment work was time-consuming without any economic return, which weakened nurses' willingness to continue practicing CGA. In an interview with Zhang *et al.* [24], nurses bluntly stated that “not making money is the reason for the difficulty in implementation”. In addition, the completion of CGA is rarely included in nursing quality assessment or performance allocation, and nurses lack economic rewards and career development recognition (such as promotion bonus points), forming a contradiction of “high recognition, low practice”.

6. Recommendations

6.1. Develop a Stratified CGA Training Plan Tailored to the Individual Characteristics of Nurses

It is suggested to establish an individualized and hierarchical training and development plan [33], specifically, based on the basic information such as the age, professional title, educational background, marital status, and experience in caring for the elderly of the trainees, different training contents, durations, quantities, and practical exercises should be set. For example, for junior nurses, unmarried nurses, and those without experience in caring for the elderly, the core theory of CGA and scenario simulation training for psychological and social assessment should be strengthened to make up for the lack of life experience; for nurses aged 31 - 40, senior nurses, and married nurses, their knowledge advantages should be utilized to cultivate them as key instructors for CGA and assume the role of experience transmission.

6.2. Expand CGA Training Coverage and Equal Opportunity

It is recommended that health administrative departments include CGA as a mandatory continuing education requirement for nurses, and require nurses in secondary and above-level hospitals to receive at least one training session every two years. Secondly, relying on regional geriatric medical centers, a “province-city-county” three-level training network should be established, fully leveraging the leading and driving role of tertiary hospitals and training bases. Additionally, a blended online–offline model should be promoted [34], supported by a CGA MOOC library containing standardized videos, virtual simulation cases, and question banks online. Nurses can use fragmented time to learn CGA knowledge, and the offline part will be conducted in the form of practical workshops to ensure that every nurse can access homogeneous training resources no matter where they are.

6.3. Optimize the Allocation of Resources and Positions

Health administrative departments should continue to promote the development of geriatrics departments in hospitals at Level II and above, and raise the bed-to-nurse ratio to above 0.6 as required by national standards [32]. At the same time, it is encouraged to establish “full-time CGA nurse” positions in geriatric-related departments, with at least one dedicated staff member responsible for assessment coordination and quality control. For medical institutions that are unable to set up such dedicated positions, it is also recommended to optimize nurse scheduling, and to include CGA assessment time as an independent workload item in the scheduling system.

6.4. Form a Multidisciplinary Team (MDT) for CGA

It is suggested that medical institutions establish standardized multidisciplinary CGA workflows. Given that older adults face aging, multimorbidity, and geriatric syndromes, multidisciplinary team (MDT) support is essential [35]. Drawing on existing MDT experience, it should be clarified that nurses assume the core hub

role in the multidisciplinary CGA team, undertaking assessment, education, intervention, and multidisciplinary liaison [36]. Together with team members including physicians, pharmacists, rehabilitation therapists, and dietitians, they jointly develop a comprehensive intervention plan based on the assessment results, ensuring closed-loop management. In addition, MDT participation can be incorporated into departmental performance evaluation, and an electronic team communication platform should be established.

6.5. Promote the Development of an Intelligent CGA Information Platform

Considering the actual circumstances in China, a platform should be developed that integrates both rapid screening and comprehensive geriatric assessment. This platform should strengthen the closed-loop management of “assessment–intervention–follow-up,” and interface with the Hospital Information System (HIS) and Electronic Medical Records (EMR) to improve work efficiency. The deep integration of AI technology with CGA is expected not only to automate and objectify certain assessment tasks, but also to uncover potential risk factors for older adults’ health, thereby providing decision support for early intervention and precision management [37].

6.6. Promote the Inclusion of CGA into Medical Insurance and Performance Evaluation

It is recommended that Chinese nursing associations and hospital administrations jointly submit a health economic evaluation report on CGA to the medical insurance authorities to advocate for its inclusion in the fee schedule and reimbursement coverage. Before policy implementation, medical institutions may offer performance-based subsidies to CGA-performing departments or nurses. Meanwhile, CGA completion rate, assessment accuracy, and intervention implementation rate should be incorporated into nursing quality indicators, and linked to individual performance, professional title advancement, and merit evaluations. This will create a positive incentive mechanism characterized.

7. Limitations

Firstly, the geographical distribution of the included studies is uneven. The existing evidence mainly comes from eastern and central provinces such as Beijing, Shandong, Zhejiang, Sichuan, and Hunan, lacking data from western regions and rural grassroots medical institutions. This limits the generalizability of the conclusions to the national geriatric nursing. Secondly, most studies adopt cross-sectional designs, which can only reveal the correlations between variables but cannot infer causal relationships. Finally, the CGA knowledge, attitude, and practice assessment tools used in each study vary—with different numbers of questionnaire items, dimension divisions, scoring methods, and standards for validity and reliability tests. This may affect the comparability and robustness of the results. Fu-

ture research should strengthen multi-center, large-sample, and longitudinal designs, and develop standardized assessment tools to further verify and expand the current findings.

8. Conclusion

Based on the KAP theory, this review reveals that Chinese nurses demonstrate a pattern of “moderate knowledge, positive attitude, but weak practice” regarding CGA, indicating a disconnect between knowledge and actual practice. The KAP framework suggests that knowledge and attitude are necessary but not sufficient conditions for behavioral change [38]. This review concludes that the difficulty in translating Chinese nurses’ positive attitudes into routine practice stems from systemic barriers, including staffing shortages, insufficient multidisciplinary collaboration, outdated information systems, and lack of reimbursement incentives, rather than individual attitudinal deficiencies. It is recommended to provide tiered training based on the characteristics of Chinese nurses to solidify their “knowledge”, job redesign to strengthen “attitude,” and improvements in resource allocation, multidisciplinary teamwork, information or AI technology, insurance coverage, and performance appraisal systems to facilitate “practice.” This approach will help Chinese nurses begin with understanding CGA, foster their attitude toward it, ultimately achieve routine practice, and thus contribute meaningfully to the Healthy Aging strategy.

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Conflicts of Interest

There are no conflicts of interest related to this article.

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