

# Examination of the role of the rotating nursing department in the training of nursing staff based on SWOT analysis

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## Abstract.

**BACKGROUND:** The implementation of the rotation system in the Chinese medical industry has achieved significant results.

**OBJECTIVES:** The present study aims to 1) explore the strengths, weaknesses, opportunities and challenges of rotational nursing department implementation and 2) provide references for developing nursing staff's competencies in leadership, performance evaluation, quality of care, communication in relationships and human resources.

**METHODS:** A total of 16 rotational nursing department staff members from a tertiary tuberculosis specialist hospital in Beijing were interviewed, and the interview data were analysed using a strengths, weaknesses, opportunities and threats analysis and class analysis.

**RESULTS:** The advantages of the rotational nursing department included: (1) stimulating the nursing staff's enthusiasm and creativity; (2) strengthening the communication and collaboration between departments; (3) improving the detailed management of nursing quality; and (4) enhancing the nursing staff's comprehensive abilities. The disadvantages included: (1) the design of the rotation programme focusing on practice; (2) a lack of personalisation; and (3) imperfect performance assessment of the rotating staff. Opportunities included: (1) deepening the connotation of nursing job management and (2) developing the construction of nursing discipline and the need for personal career development and value realisation. Threats included the lack of a sound rotation management model to draw on.

**CONCLUSION:** A rotational nursing department is conducive to enhancing the competence of nursing staff in management positions and providing new ideas for hospitals to select and train nursing management talents. By taking full advantage of the benefits of vertical nursing management, designing personalised rotation training programmes, building a diversified learning and training platform and developing a positive performance incentive mechanism is recommended to fully engage the role of rotation in nursing management talent training.

Keywords: Job rotation training, post competency, SWOT analysis, nursing management

## 1. Introduction

The job competency of nursing managers is essential for hospital development [1]. The concept of

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job competency was proposed by Supamanee and Krairiksh and applied among nursing managers. This notion refers to the sum of competency characteristics required to undertake a specific task role and includes communication and relationship management, clinical practice knowledge, business knowledge, professional standards and leadership and skills [2]. One of the issues that hospitals must address is how they select high-level and experienced nursing managers and help them develop in their roles. Rotational training, as a distinctive mode of continuing education, is widely used in a business context and has gradually been introduced to modern hospital management [3] with good results. The implementation of the rotation system in the Chinese medical industry has achieved significant results by utilising the advantages of interdisciplinary cooperation and promoting continuous learning to enable medical technicians and managers to acquire professional knowledge, thereby enabling more accurate diagnoses, applying more effective treatment plans and enhancing patient safety [4]. Furthermore, by rotating different departments and professions, medical technicians and managers can manage fluctuations in patient numbers, emergencies and emerging medical needs more effectively [5]. Rotation of the nursing department can improve the comprehensive ability of nursing management personnel and stimulate work enthusiasm and creativity; it is also conducive to the improvement of patient medical safety.

## 2. Conceptual background

In the human resource management of modern enterprises, training the general enterprise personnel to become multi-skill operators in the field requires management personnel at all levels to become multi-skilled operator models first. These staff members must be the first to accept a transfer in field post and familiarise themselves with and master the work of different roles. The nursing rotation system is widely implemented in medical institutions and aims to improve the abilities, job satisfaction and career development of nurses [6]. It also enables nurses to exchange experiences in different clinical environments and cultivate their adaptability and capabilities [6]. This adaptability has proven valuable during public health crises, such as the COVID-19 pandemic [7]. The responsibility of the nursing department management position is to ensure high-quality, safe and coordinated nursing services as well as the efficient operation of the nursing team [8]. The nursing department management position requires management and leadership based on the organisation's strategic goals and nursing practices to achieve the best nursing outcomes and patient experiences [8]. Currently, relatively little research has been conducted on nursing staff rotating through nursing departments. The present study employed the following aspects: (1) the strengths, weaknesses, opportunities and threats (SWOT) analysis, or systematic analysis, arranged according to the matrix form; (2) the matching of various factors; and (3) the formulation of a series of decisions and conclusions. The study aimed to explore the advantages, disadvantages, opportunities and challenges in the process of nursing staff rotation in the nursing department and provide a basis for hospitals to cultivate nursing management talents that meet the development needs of modern hospitals.

## 3. Materials and methods

### 3.1. General data

Using the purposive sampling method, nursing staff rotating through the nursing department of Beijing Tuberculosis Specialized Hospital were selected as the study population.

Inclusion criteria: (1) patients with a bachelor's degree or above; (2) patients with  $\geq 5$  years of

experience in clinical nursing; (3) patients with a position of nurse practitioner or above; (4) patients currently in a clinical nursing post; and (5) patients with  $\geq 3$  months of rotation experience in the nursing department. All participants signed an informed consent form for inclusion in the study. Exclusion criteria: rotating staff who had left the nursing department.

### 3.2. Methodology

#### 3.2.1. Data collection methods

Using the phenomenological research method in qualitative research, face-to-face semi-structured interviews were used to collect data. The researcher developed an interview outline after reading a large amount of literature, which included: (1) What were your experiences during the nursing unit rotation that were different from ward nursing work? (2) Difficulties encountered during the nursing unit rotation and how they were resolved. At the end of the rotation, in-depth interviews were conducted with the nursing staff of the nursing rotation department around these two questions. After obtaining the informed consent of the interviewee, the investigators used a unified explanatory language to introduce the background and purpose of this interview to them in their office, and conducted face-to-face, one-on-one interviews; in the same time, used recording equipment for recording. During the interview, keep the environment quiet and the two parties were not disturbed, and the time limited to 30–60 mins. Within 24 hours after the interview, 2 members of the research group were responsible for the text conversion, sorting and checking of the recordings.

#### 3.2.2. Data analysis methods

The situational (or SWOT) analysis was proposed in the early 1980s by Wyrick, a professor of management at the University of San Francisco. The SWOT analysis can help to determine the survival and development strategy of an organisation; accordingly, the resources and strategies of the company can be adjusted to achieve its goals. In recent years, SWOT has been continuously applied to the study of hospital discipline construction and nursing management [9,10,11,12].

Class analysis, or analogical analysis, is the process of searching for recurring phenomena in data and the important concepts that explain them [13]. In this process, information with the same attributes is grouped into the same category and named based on specific concepts.

## 4. Results

### 4.1. General respondent information

The study included 16 nursing staff members (all women), coded as G1–G16. At the time of rotation, the members: (1) were aged  $29.38 \pm 3.74$  years; (2) had  $9.19 \pm 4.69$  years of nursing work experience; (3) had a master's degree (3 members) or a bachelor's degree (13 members); (4) had a title of supervising nurse (4 members) or nurse practitioner (12 members); (5) had a position of assistant nurse manager (5 members) or nursing cadre (11 members); and (6) had a current position of chief nurse (5 members), deputy chief nurse (5 members) or nursing cadre (6 members). The general information of the respondents is shown in Table 1.

### 4.2. Strengths analysis

#### 4.2.1. Enhancement of the rotation staff's comprehensive abilities

Rotation training is an effective way to enhance comprehensive abilities, promote the overall improve-

Table 1  
General information of respondents

ID	Education	Current positions	Age of initial rotation	Years of work
G1	Bachelor	Chief nurses	39	22
G2	Bachelor	Chief nurses	30	10
G3	Master	Chief nurses	26	5
G4	Bachelor	Chief nurses	35	15
G5	Bachelor	Chief nurses	29	10
G6	Bachelor	Deputy chief nurse	26	5
G7	Bachelor	Nursing cadre	29	8
G8	Bachelor	Deputy chief nurse	26	5
G9	Bachelor	Nursing cadre	29	11
G10	Master	Deputy chief nurse	29	7
G11	Bachelor	Deputy chief nurse	29	8
G12	Bachelor	Deputy chief nurse	31	12
G13	Bachelor	Nursing cadre	26	5
G14	Bachelor	Nursing cadre	31	13
G15	Master	Nursing cadre	26	5
G16	Bachelor	Nursing cadre	28	6

ment of business quality and practice ability and achieve a good talent cultivation effect [14]. During the implementation of rotation in the nursing department, the nursing staff gained multi-dimensional learning and the ability to develop professionally, increased their global view, improved their organisation, management, problem identification and problem-solving abilities and could judge and analyse matters comprehensively.

G3: 'By rotating through the nursing department, my role in the hospital will change from directly facing patients to facing higher medical authorities, other functional departments and nurses throughout the hospital, [thereby] broadening my horizons and improving my awareness of the bigger picture'.

G2: 'From the clinical post to the management post, the perspective of looking at the problem has changed, and from how to do a good job in clinical nursing to how to become an excellent nursing manager'.

G7: '[I] learned a lot about the meaning of nursing work'.

G12: 'This pattern is more self-conscious than the previous model'.

#### 4.2.2. Stimulating the enthusiasm and creativity of rotating staff

The work content of the nursing department is different from clinical nursing work, and rotating nursing staff may initially experience a sense of pressure and urgency, which can prompt them to implement new ways of thinking, stimulate their enthusiasm, innovation and competitiveness concerning their work, support their strengths, lead them to explore their potential and broaden their scope for thinking and innovation.

G9: 'I was a little nervous to hear that I would be rotating in the nursing department because it was different from what I was used to, but I felt excited [about challenging] myself'.

G11: 'It was a new feeling to [work] in the nursing department, and I independently planned a trip outside the hospital to celebrate Nurses' Day, which had not been done before, and it was a great achievement'.

G1: 'Through the rotation in the nursing department, my own ability to promote news writing and material photography has improved greatly'.

G5: 'I found that the pace of work in the nursing department [was] very fast, and I can't help but be driven to work harder and complete my work efficiently and at a high quality.'

#### 4.2.3. Improving the refined management level of nursing quality

Nursing quality is an important element in measuring the level of nursing management, the core competence of the nursing staff and the effectiveness of nursing service work [15,16]. Enhancing the meticulous management of nursing quality and continuous quality improvement, as well as improving the awareness of risk warning management to improve patient safety, is especially important.

G1: 'I used to just perform the things required for quality control of care, but now I know why to do it and how [refining] the measures can improve the quality'.

G7: 'After following the supervision and inspection of each nursing quality control team I have a better understanding of what continuous quality improvement is and that the work indicators are dynamic.'

G14: 'In clinical work [I] will pay more attention to the purpose and meaning of various standards, processes, routines and systems, and do [my best] in process management and link quality control'.

G16: 'For nursing quality, [based on] interpretation of the policy, [an] inspector's perspective to the problems found in the inspection, a systematic and comprehensive understanding of the significance of detail management or refinement management in nursing quality management, also made me think more about refinement nursing quality control'.

#### 4.2.4. Strengthening communication, coordination and teamwork ability

The nursing department has built a platform for knowledge sharing and information exchange between rotating nursing staff and various functional and clinical departments. The platform provides nursing staff members with additional opportunities to meet and participate in dealing with various problems, change their inherent thinking patterns and working concepts, exercise communication and response skills, cultivate transpersonal thinking, objective analysis and observation, and enhance their abilities to deal with complex problems.

G6: 'In the nursing department, through communication with higher medical authorities, other hospitals and various clinical departments and functional offices in the hospital, I have honed my ability to do things in a logical and coordinated manner and to work as [part of] a team'.

G13: 'I was responsible for organising two national forums and two municipal conferences and Nurses' Day celebrations, and my abilities in meeting organisation, communication and coordination, cost control and information technology application have been improved'.

G2: 'There is no perfect individual, only a perfect team'.

See Table 2.

### 4.3. Weaknesses analysis

#### 4.3.1. Lack of perfect rotation training programme design

The current rotation programme was formulated according to the management functions of the nursing department. It primarily focuses on the practice of task-oriented work and lacks a theoretical framework and systematisation.

G15: 'I feel that the scope of work functions of the nursing department is particularly large, and the pace of work is particularly fast. After I finish the work I am responsible for, I just follow the teachers, and I still can't say what the nursing department is mainly busy with'.

G3: 'I wish there [had been] a rotation manual or a quantitative schedule when I first joined the nursing department so that I would know what I have not yet been exposed to.'

G11: 'The performance distribution of the nursing department is particularly comprehensive, and the bonus and secondary distribution of nurses in the whole hospital were distributed according to the programme under the guidance of teachers, which is very accomplished, but the principle of programme development is not very clear'.

Table 2  
The advantages of nursing department in nursing management personnel training

Strengths	Respondent's viewpoint
Enhancement of comprehensive ability of rotating nursing staff	G3: By rotating through the nursing department, broadening my horizons and improving my awareness of the bigger picture. G2: From the clinical post to the management post, the perspective of looking at the problem has changed, and from how to do a good job in clinical nursing to how to become an excellent nursing manager. G7: Learned a lot about the provenance and meaning of the work. G12: This pattern is more self-conscious than the previous model.
Stimulate the enthusiasm and creativity of rotating staff	G9: I was a little nervous to hear that I would be rotating in the nursing department, but I felt excited to challenge myself. G11: It was a new feeling to come to work in the nursing department. G1: My own ability to promote news writing and material photography has improved greatly. G5: I found that the pace of work in the nursing department was very fast, and I can't help but be driven to work harder and complete my work efficiently and at a high quality.
Improve the level of refined management of nursing	G1: I used to just perform the things required for quality control of care, but now I know why to do it and how to refine the measures can improve the quality. G7: After following the supervision and inspection of each nursing quality control team to better understand what continuous quality improvement is and that the work indicators are dynamic. G14: In clinical work will pay more attention to the purpose and meaning of various standards, processes, routines and systems, and do a good job in process management and link quality control. G16: For nursing quality, from the interpretation of the policy, inspector's perspective to the problems found in the inspection, a systematic and comprehensive understanding of the significance of detail management or refinement management in nursing quality management.
Strengthening communication and coordination and teamwork ability	G6: I have honed my ability to do things in a logical and coordinated manner and to work as a team. G13: My abilities in meeting organization, communication and coordination, cost control and information technology application have been improved. G2: There is no perfect individual, only a perfect team.

#### 4.3.2. Incomplete performance assessment of rotating nursing staff

A common issue is the difficulty of unifying quantitative standards for functional department assessment as well as accurate and objective evaluation [17]. Moreover, the rotation time for nursing staff involved in rotation is generally 3–6 months, with a relatively frequent changes as well as flexible and variable work; there is currently no perfect assessment or evaluation system for rotating nursing staff.

G9: 'Although the bonus during the rotation is different from the original section, it is most important to learn a lot of knowledge and skills.'

G4: 'I hope to [receive] two-way evaluation feedback between the nursing department and the rotating staff at the end of the rotation, so that I can recognise my improvement and shortcomings more clearly and also provide orientation for the staff in the later rotation'.

G8: 'It is recommended that some performance incentives be given to nursing staff with relatively long rotations'.

See Table 3.

#### 4.4. Opportunity analysis

##### 4.4.1. Deepening the nursing-post management implications

The national nursing world development plan (2016–2020) proposes taking the implementation of

Table 3  
The weaknesses of nursing department in nursing management personnel training

Weaknesses	Respondent's viewpoint
Lack of perfect design of rotation training program	G15: I feel that the scope of work functions of the nursing department is particularly large and the pace of work is particularly fast. G3: I wish there was a rotation manual or a quantitative schedule when I first joined the nursing department. G11: The principle of program development is not very clear.
Incomplete performance assessment of rotating nursing staff	G9: The bonus during the rotation is more different from the original section. G4: I hope to have a two-way evaluation feedback between the nursing department and the rotating staff at the end of the rotation, so that I can recognize my improvement and shortcomings more clearly, and also provide reference for the staff in the later rotation. G8: It is recommended that some performance incentives be given to nursing staff with relatively long rotations.

nursing-post management as an entry point, continuously reforming and innovating the nursing management system and mechanisms, actively exploring and practising the scientific management of nurses' human resources and continuously improving nursing quality following the work requirements for deepening medical reform, as well as nursing reform and development [18]. The continued development of nursing-post management reform provides additional directional guidance and experience support for the rotating nursing department.

G10: 'According to the changes of [healthcare] reform policy and the strategic development needs of the hospital, the nursing department has set up rotating positions to create conditions for nursing staff to improve their comprehensive [abilities]. As a clinical nurse who can come to the nursing department to rotate for a period of time, I will especially cherish this opportunity.'

G15: 'When I was certified as a specialist nurse in an outside hospital, I also learned what [types] of nurses were in other hospitals and how many could rotate to the nursing department, and after comparing them, I was especially [appreciative of having learned new] knowledge in the nursing department'.

#### 4.4.2. Combination of career development and value realisation

The career development of nurses refers to the process of nurses continuously exploring and establishing career paths, raising and improving their professional abilities, adapting to their professional roles, improving their professional abilities and achieving professional success through different avenues [19]. A rotating nursing department can stimulate the nursing staff's motivation and sense of responsibility, continuously improve their knowledge structures, enhance their overall comprehensive abilities and help them to more effectively combine career development with personal value realisation.

G10: 'With the increase in patients' demand for medical care and the refinement of nursing quality, to be a good nurse, you can't just know how to do nursing operations on the line, you have to strengthen your communication, coordination and other aspects of ability'.

G16: 'During my rotation in the nursing department, all the problems that confused me before were solved under the guidance of the teachers . . . I also applied for a patent, which strengthened my confidence to [continue developing] in the direction of scientific research and innovation'.

See Table 4.

### 4.5. Threat analysis

#### 4.5.1. Lack of an established model that can be implemented for the management of rotation training in the nursing department

Rotation training is a systematic process, and although some hospitals have implemented rotation

Table 4  
The opportunity of nursing department in nursing management personnel training

Opportunity	Respondent's viewpoint
Deepening of the connotation of nursing post management	G10: According to the changes of health care reform policy and the strategic development needs of the hospital, the nursing department has set up rotating positions to create conditions for nursing staff to improve their comprehensive ability. G15: I was especially honored to learn knowledge in the nursing department.
Combination of career development and value realization	G10: To be a good nurse, you can't just know how to do nursing operations on the line, you have to strengthen your communication, coordination, coordination and other aspects of ability. G16: During my rotation in the nursing department, all the problems that confused me before were solved under the guidance of the teachers, and I also applied for a patent, which strengthened my confidence to develop in the direction of scientific research and innovation.

Table 5  
The threat of nursing department in nursing management personnel training

Threat	Respondent's viewpoint
Lack of a model for management of rotation training in nursing department that can be borrowed	G3: Each hospital is doing its own rotation and there are no accepted detailed guidelines. G12: The design of the rotation training program can be combined with the subjective will and personality characteristics of the nursing staff. G7: It is recommended to do a pre-service training before the rotation. G11: More nursing staff who excel in various merit evaluations can be allowed to rotate to the nursing department, which will certainly help clinical nursing even if they don't do management positions.
The nursing rotation model takes a long time	G4: It doesn't have to take so long to rotate, a lot of nursing skills are similar, and these can be mastered quickly. G8: After a year of rotation, I think I have been able to reach the level of working independently.

training in their nursing departments, everyone's view and the stage of the hospital to carry it out are different, and there is no perfect model for rotation management that can be established.

G3: 'After learning about the nursing staff coming to different hospitals for refresher training, each hospital is doing its own rotation, and there are no accepted detailed guidelines.'

G12: 'The design of the rotation training programme can be combined with the subjective will and personality characteristics of the nursing staff [but] the most important [aspect remains] the job requirements of the hospital.'

G7: 'It is recommended [that] pre-service training [be conducted] before the rotation'.

G11: 'More nursing staff who excel in [relation to] various merit evaluations can be allowed to rotate to the nursing department, which will certainly help support clinical nursing even if they don't take up management positions'.

#### 4.5.2. The nursing rotation model takes a long time

Nursing rotation training is a systematic project, and the rotation cycle is somewhat long. Since the inclusion of standardised training, each nurse is required to rotate for 2 years.

G4: 'It doesn't have to take so long to rotate, a lot of nursing skills are similar, and these can be mastered quickly'.

G8: 'After a year of rotation, I think I have been able to reach [a] level [allowing me to work] independently'.

See Table 5.

## 5. Discussion

The results of this study showed that rotating nursing departments can enhance the comprehensive



abilities of nursing management personnel, stimulate work enthusiasm and creativity, and improve the level of refined management of nursing quality and strengthen communication, coordination, and team cooperation abilities. This indicates that the rotating nursing department has certain advantages in cultivating nursing management personnel. Alfuqaha et al. [20] also suggested using a rotation approach to improve nurses' job satisfaction and commitment. It is thus important to successfully rotate nursing management personnel in the nursing department. According to guidelines provided by the National Health Commission of China on quality nursing services, based on strong support from hospital leaders and cooperation between departments and medical staff, and through the vertical management model of nursing, potential nursing staff should be horizontally allocated to rotate within nursing departments while actively linking multiple departments of the hospital to mobilise more resources for joint participation [21].

The results of this study indicate that performance appraisal is not the primary issue in the rotation of nursing managers. The assessment and evaluation of nursing staff is an important means for measuring the ability of nursing managers and is also an important basis for determining the evaluation of the rotation model [3]. A study by Platis et al. [6] underscored the need to establish clear basic rules for job rotation, monitoring and subsequent evaluation, as well as effectiveness evaluation. To track and dynamically manage the training effectiveness of rotating nursing staff in real-time, multi-dimensional evaluations should be conducted regularly from multiple perspectives, including the views of teaching staff, department members and service recipients to evaluate the work abilities of rotating nursing staff comprehensively and objectively.

The results based on the SWOT analysis indicated a need to deepen the links between nursing position management and combining career development with value realisation. Questions related to rendering nursing staff competent in their roles must be considered and practiced by all nursing managers. Nursing management is the foundation for ensuring nursing quality and a prerequisite for the orderly and smooth implementation of nursing work [22]. To deepen the management of nursing positions, it is necessary to create a working environment that actively supports the career development and value realisation of nursing staff and create a diversified learning and training platform. Senior nursing staff who are proficient in department business can be selected to teach rotation personnel and encourage them to explore their potential through 'task setting and pressure' methods to enhance nursing the management personnel's understanding of the nursing job management connotation. Studies have shown that nurses with relatively high professional qualifications and opportunities to participate in training programmes in China have relatively high job satisfaction [23]. Therefore, the cultivation of nursing management personnel should: (1) combine career development with value realisation; (2) follow the principle of 'going out and inviting in'; (3) link resources from multiple departments within the hospital, cities outside the hospital and national platforms; (4) regularly invite experts from within and external to the hospital to give management and research lectures; and (5) irregularly send rotating employees to exchange and learn, provide ideas and suggestions and broaden their horizons.

The research results showed that there was currently a lack of management models for nursing rotation training that can be used for reference. Adatara et al. [24,25,26] also had a similar research conclusion: some nursing staff were not clear about the goals of rotation, and they suggested establishing a well-structured clinical rotation plan with learning as the goal to achieve the goals of the clinical rotation plan for newly qualified nurses. Therefore, nursing departments should integrate targeted personalized training programs based on the independent selection of rotating nursing personnel, combined with actual work needs and differences in their own abilities, and focus on guiding rotating nursing personnel to closely combine management knowledge with clinical work characteristics, in order to better achieve the purpose of rotation.

This study has some limitations. First, the number of respondents included in this study was relatively small, which may affect the generalisation and applicability of the findings. Second, the study adopted a semi-structured interview format, where the subjectivity of the interviewees may have given rise to information bias or selective memory, which may have a degree of impact on the results.

## **6. Conclusion**

At present, traditional nursing managers, who lack systematic pre-service training [27,28], are primarily selected among clinical nursing cadres, and there is no assessment of their competency in management positions. This results in a relatively long period of time in the role-adaptation stage after taking up the post and even the situation of being unsuitable for nursing management positions, which is not conducive to hospital management. Selecting nursing staff with the potential to rotate in the nursing department is an approach for improving nursing talent training, which will be conducive not only to improving the competence of management positions but can also provide a more suitable development direction based on staff characteristics and hospital development needs, as well as provide new ideas for hospitals to cultivate nursing management, teaching, scientific research and clinical and other multifaceted talents. However, it should be noted that the implementation process of a rotating nursing department comprises dynamic, challenging and developmental elements and close attention should be paid to process changes and timely analysis and adjustment should be conducted [10]. It is recommended that advantage be taken of nursing vertical management, personalised rotation training programmes be designed, a diversified learning and training platform be created and a positive performance incentive mechanism be developed to promote the effective implementation of rotation in nursing departments.

## **Ethics statement**

This study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committee of Beijing Chest Hospital. Informed consent was obtained from all participants. All methods were carried out in accordance with relevant guidelines and regulations.

## **Availability of data and materials**

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

## **Competing interests**

None of the authors have any personal, financial, commercial, or academic conflicts of interest.

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## Author contributions

Study design: Chen Lv, Qian Guo, Shuang-Shuang Peng, Xiao-Feng Chen.  
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 Critical revision of the manuscript for intellectual content: Xiu-Hua Wang.  
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 All authors prepared and reviewed the manuscript, and approved the final version.

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