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Research Advances on Flow Experience in Nursing Work

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Abstract: *This paper elaborates on the concept of flow experience, its measurement tools, influencing factors, and its impact on nurses' clinical work. It proposes practical measures to enhance flow states 1and suggests that domestic scholars should deepen research on nurses' flow experiences in workplace settings,aiming to promote the mental health of healthcare professionals and improve the quality of medical care.*

Keywords: *Nurses; Flow Experience; Nursing Work; Influencing Factors; Review*

1. Introduction

Nurses constitute a vital component of the healthcare system. Their professional competence and mental health status not only determine the quality of clinical services but also play a critical role in patient safety outcomes[1]. However, according to the National Nursing Development Plan (2021–2025) report, China continues to face a severe shortage of nursing human resources [2]. On one hand, the aging population and continuously growing demand for medical services are driving increased need for nurses. On the other hand, nurses confront challenges including occupational burnout, effort-reward imbalance, and workplace violence, resulting in heightened turnover intention among nursing staff [3–5]. At the organizational level, exploring nurses' occupational mental health can not only effectively improve their physical and psychological well-being but also help reduce turnover rates, stabilize the professional workforce, and enhance overall nursing service quality[6]. Previous research has found that nurses' personal resources (e.g., personal accomplishment) also influence their work motivation and job satisfaction[7]. Within the framework of positive health psychology[8], the research paradigm has gradually shifted from solely focusing on occupational risk factors toward cultivating individual psychological capital[9]. Flow experience, in particular, can provide sustained work motivation by fostering nurses' immersive work state, thereby facilitating the continuous accumulation of personal accomplishment. Flow refers to a state experienced when an individual is fully absorbed in an activity—characterized by complete immersion in the task, distortion of time perception, loss of self-consciousness, and deep enjoyment and fulfillment[10]. Research indicates that flow experience in the workplace not only promotes the physical and mental well-being of practitioners but also significantly enhances their work efficacy[11].Concurrently, international studies demonstrate[12,13], that nurses' flow experience correlates with their work environment, work motivation, and job satisfaction—factors critically important for improving nurses' work-related well-being and professional retention. However, there remains a scarcity of research on nursing flow in China. Therefore, this study conducts a comprehensive review of relevant domestic and international research, aiming to offer insights for enhancing nurses' job satisfaction and career stability.

2. The Concept of Flow Experience

Flow experience was identified by psychologist Mihaly Csikszentmihalyi in the 1970s through long-term observation of artists, athletes, and other professionals. He documented a unique concentration phenomenon—when individuals engage in moderately challenging activities matching their skill level,

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they enter a state of complete immersion and self-forgetfulness, which he termed "flow"[14]. In this state, attention becomes intensely focused on the task at hand, often leading to disregard for time passage and external distractions. Notably, individuals who experience flow frequently develop a positive cycle of "the more engaged, the more skilled; the more skilled, the more passionate." This self-reinforcing nature establishes flow as a key psychological mechanism explaining sustained professional engagement [15].

Csikszentmihalyi[16]delineated nine core dimensions of flow: (1)clear goals, (2) immediate feedback, (3) balance between skills and challenge, (4) merger of action and awareness, (5) focused concentration, (6) sense of potential control, (7) loss of self-reflective awareness, (8) distortion of temporal experience, and (9) autotelic experience. These elements not only constitute the fundamental structure of flow but also serve as practical guidelines for cultivating flow states in daily life.

3. Flow Experience Measurement Tools

Actual manifestations of flow states exhibit significant variations across individual characteristics, necessitating measurement through multidimensional assessment systems. Current approaches primarily employ qualitative and quantitative methodologies[17]: qualitative methods mainly consist of interviews, while quantitative approaches predominantly include questionnaires and the Experience Sampling Method (ESM).

3.1 Interview Method

The interview method (also termed qualitative research) [15] represents a traditional approach for measuring flow experience, with the earliest flow measurement studies conducted by Csikszentmihalyi using this methodology. Researchers typically employ face-to-face communication formats (including both individual and group interviews), first guiding participants to retrospectively describe the characteristics of their optimal experiences during activities, then applying textual analysis to code, categorize, and systematize the interview transcripts.

3.2 Questionnaire Method

Jakson and Marsh[18]co-developed the Flow State Scale (FSS) and the Dispositional Flow Scale (DFS), comprising 36 items equally distributed across nine dimensions, including challenge-skill balance and goal clarity. Utilizing a Likert 5-point scoring system and validated through contexts such as athletic training and artistic creation, these scales effectively assess the intensity of individuals' immersive experiences during specific activities. They have since become standardized instruments in cross-cultural psychological research.

In 2010, Chinese researchers Liu Weina et al. conducted cultural adaptation and psychometric validation of these two scales. The study demonstrated that the revised Chinese versions exhibit adequate reliability and validity, having gained recognition among scholars in related fields. While certain limitations exist regarding participant selection and primary applicability, these instruments have been effectively deployed across domains including sports, education, and leisure, proving particularly significant in measuring flow experiences within athletic contexts[19].

Bakker[20]developed the Work-Related Flow Inventory (WOLF) in 2008 to assess flow experiences during work. This 13-item scale comprises three dimensions: absorption (4 items), work enjoyment (4 items), and intrinsic work motivation (5 items). Utilizing a 7-point Likert scale (1 = "never" to 7 = "always"), higher scores indicate greater flow levels experienced by employees. In the initial validation study, Cronbach's α coefficients ranged from 0.75 to 0.90 across dimensions, demonstrating good internal consistency. Internationally, Bakker's instrument has provided a vital tool for flow research in the nursing profession. Chinese scholar Zhu Lilian[21]subsequently adapted this scale for domestic applications through contextual modifications.

3.3 Experience Sampling Method (ESM)

The Experience Sampling Method (ESM)[22], pioneered by Csikszentmihalyi and colleagues for flow research, is a dynamic technique for tracking psychological states in real time. Participants carry electronic signaling devices through which researchers deliver random prompts. Upon receiving signals, respondents immediately complete ESM questionnaires documenting their current activities and psychological experiences. Data collection typically spans seven consecutive days. The instrument

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comprises 13 categorical items and 29 scaled questions. This method's primary strength lies in capturing in-situ psychological data—particularly the dynamic manifestation of challenge-skill balance—within authentic contexts. However, limitations include:(1) demanding participant compliance, (2) potential fatigue effects during extended tracking, and (3) possible disruption of spontaneous flow states during data collection.

4. Factors Influencing Nurses' Flow Experience

4.1 Nurse-Specific Individual Factors

The occurrence of flow experiences among nurses is influenced by multiple factors. Among these, both intrinsic cognition and skill balance constitute critical determinants of flow states in nursing personnel.Zito et al.[13]revealed through a survey of 197 nurses at an Italian hospital that individuals with psychological traits such as high self-efficacy and harmonious passion are better equipped to buffer the physical and mental depletion from high-intensity nursing work through flow experiences[23,24]. Furthermore, the emergence of flow experience is contingent upon a balance between challenge and skill. Tasks must neither be overly simplistic (lacking challenge) nor excessively complex (exceeding one's capabilities). Only when nursing professionals possess adequate skills while confronting moderate challenges—maintaining clear self-awareness of their competencies and confidence in task mastery—are they optimally positioned for flow states to occur[24].

4.2 Work-Related Factors

Beyond individual factors, work-related elements exert pivotal influence in enhancing flow experiences during nursing work contexts. Existing research indicates[25]that a supportive managerial climate (e.g., leaders providing emotional support and career guidance), rational staffing arrangements, and collaborative colleague relationships collectively constitute foundational conditions facilitating flow experiences. Specifically, supportive behaviors from nurse managers—including empowerment through participatory decision-making and safeguarding work autonomy—have been identified as core elements for triggering flow states[26]. The underlying mechanism operates by mitigating work-related stress and enhancing nursing staff's perception of task control[24].From a resource allocation perspective, adequate provision of physical protective equipment, mental health support, and team collaboration opportunities[24,27]enables nurses to maintain real-time skill-task equilibrium when confronting clinical challenges. Positive psychology research further demonstrates[28]that such work resources fuel sustained emergence of flow experiences by enhancing professional motivation and job satisfaction, thereby generating intrinsic propulsion.

5. The Impact of Nurses' Flow Experience on Clinical Work

5.1 The Impact of Flow Experience on Patient Care

Flow experience significantly promotes the improvement of patient care quality. Patient safety and the enhancement of care quality are core issues in the global nursing field. Key evaluation indicators for this include Implicit Rationing of Nursing Care (IRNC, referring to the omission or delayed execution of essential nursing tasks) and Adverse Patient Events (APE, i.e., unintended injury incidents)[29].These two types of problems can directly lead to adverse consequences such as decreased patient satisfaction, prolonged hospitalization (or: extended hospital stays), and increased safety violations[30].Research has confirmed[12]that nurses in a flow state can significantly enhance task concentration and operational precision. This focused state reduces nursing omissions caused by distraction (such as failure to perform basic care like timely turning and percussion), while also decreasing risks like medication errors and oversights in fall prevention by heightening clinical vigilance. International studies have further confirmed[31]that the flow experience is not only associated with nurses' physical and mental health and job satisfaction, but also translates into high-quality nursing practice through enhanced work engagement, thus establishing a virtuous cycle of "enhanced nurse concentration→reduced nursing errors→improved patient safety". However, empirical research on this topic remains limited in China's nursing field. Particularly, the quantitative relationship between flow experience and patient safety indicators (such as IRNC and APE) urgently requires exploration. Future research needs to develop flow intervention programs tailored to the specific characteristics of nursing work in China's clinical context, aiming to enhance the quality and efficiency of patient safety management through scientific approaches.

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5.2 The Impact of Flow Experience on Nursing Staff Career Development

Nurses who experience prolonged high emotional labor (or: emotional burden) and emotional dissonance face a significant risk of occupational burnout. Flow experience can serve as an effective mitigation mechanism for this risk. Research indicates[24,32]that the flow state reduces anxiety and depression levels through its inherent characteristic of deep focus. This mechanism aligns with the health promotion theory proposed by Csikszentmihalyi[33]: when nurses enter a flow state, enhanced job autonomy and immediate feedback loops not only increase operational precision but also imbue nursing actions with a deeper sense of meaning[13].This high-efficacy state is directly manifested in higher job satisfaction, better nursing quality, and lower incidence rates of occupational burnout[23,34].From an organizational management perspective, when flow experience is combined with managerial support and reasonable job autonomy[35], it can create a "psychological resource regeneration" effect. This effect not only buffers the physical and mental depletion caused by clinical work but also enhances retention intention by strengthening professional identity. However, it is important to note that excessive reliance on the immediate gratification provided by flow may lead to compulsive overengagement, which can paradoxically exacerbate fatigue and turnover tendency[23,35].Therefore, the application of flow experience in nursing practice requires adherence to the principle of moderation, balancing short-term performance enhancement with the maintenance of long-term occupational health.

5.3 The Impact of Flow Experience on the Organization

The healthcare industry, as a typical high-risk profession, relies heavily on the professional competence of the nursing workforce for cultivating its safety culture. As frontline clinical personnel, nurses' professional stability and work status directly impact patient safety outcomes. Currently, the nursing field faces a dual challenge: on the one hand, a high turnover rate and staff mobility not only undermine team stability but also hinder the continuous improvement of clinical nursing quality[36,37].On the other hand, excessive workload and frequent night shifts lead to circadian rhythm disruption and physical/mental exhaustion[38],further intensifying nurses' tendency towards occupational alienation.To address this dilemma, research suggests[31]that systematically enhancing nurses' flow experience can effectively alleviate occupational burnout. The underlying mechanisms involve: 1) optimizing the balance between work engagement and stress coping; and 2) strengthening professional identity and team belonging. When nursing managers collaboratively implement flow-promoting strategies (such as rational scheduling and skill-task matching), it not only stabilizes the nursing workforce but also fosters the virtuous cycle development of a medical safety culture by improving nurses' clinical focus.

6. Key Measures to Promote Flow Experience in Nursing Work

To alleviate nurses' job burnout, reduce turnover intention, and improve the quality of nursing care, it is necessary to systematically enhance nurses' clinical flow experience through targeted interventions.

First, nursing managers should exert coordinated efforts from three dimensions: resource support, environmental optimization, and competency development. Specifically, they should provide adequate resource allocation and appropriate staffing[39,40], adopt supportive leadership styles (e.g., daily feedback, emotional support, clear task objectives), and encourage nurses' participation in hospital decision-making, so as to build a favorable nursing practice environment.[26]On this basis, it is necessary to optimize the work environment design by balancing job challenges and career development opportunities, granting nurses task autonomy and reasonably allocating workloads, allowing them to achieve flow experiences through high-level skill application; simultaneously focusing on establishing organizational justice and supervisor-subordinate trust relationships[13,41], to create sustainable career development space for nurses. Furthermore, Colombo et al.[13]pointed out that it is also necessary to systematically develop professional training programs, focusing on enhancing nurses' core competencies such as communication and collaboration as well as team empowerment, through cross-skill training to strengthen their confidence in coping with complex clinical demands.Simultaneously, multiple studies indicate[42,43]that nursing managers need to enhance leadership cognition through specialized training, clarifying their key role in creating a flow-friendly work atmosphere; specifically including dynamically monitoring the matching degree between nurses' competencies and job challenges, providing constructive performance feedback, and scientifically adjusting workloads to prevent burnout caused by excessive engagement, thereby forming a virtuous cycle that promotes nursing quality and team stability.

Secondly, Donaldson, Salanova et al.[44,45]describe in their research that medical institutions should

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help nurses effectively cope with emotional stress in doctor-patient interactions through regular psychological counseling services (e.g., group counseling, emotion management training) and structured supervision mechanisms, systematically enhancing their emotion regulation abilities to form a virtuous cycle. Such interventions can not only buffer the erosion of work motivation by emotional exhaustion, but also lay a psychological foundation for sustained flow experiences by stimulating self-efficacy and professional interests (e.g., weekly positive psychological interventions)[39,46].Although there is currently a lack of flow intervention studies targeting the nursing population, intervention strategies from other fields (e.g., education, sports psychology) can provide important references. An international study[47] shows that employee mindfulness and leader mindfulness help reduce employees' emotional rumination, increase their problem-solving thinking and flow experiences, which may be applicable to nurse-patient communication scenarios in nursing work.Overall, to systematically enhance nurses' flow experiences, it is necessary to coordinate organizational management and individual support: on the one hand, creating a supportive environment by optimizing resource allocation, enhancing leadership levels, and improving work design; on the other hand, strengthening nurses' emotion regulation and professional competence through psychological training and capability development, thereby enabling nurses to achieve a dynamic balance between skills and challenges in clinical practice.

7. Conclusion

Currently, research on nurses' flow experiences abroad has formed a relatively complete system. Multiple empirical studies show that enhancing nurses' flow experiences has significant promoting effects on patient prognosis quality, nursing professional identity, and medical institution effectiveness. Studies point out that both subjective and objective factors such as nurses' professional competence, work autonomy, and organizational support affect their flow experiences.Comparatively, research on healthcare workers' flow experiences in China is still in its initial stage: existing achievements mostly focus on fields such as education, arts, and sports, while systematic research targeting medical practitioners remains insufficient. In this regard, it is suggested that domestic scholars can refer to international research paradigms to prioritize two tasks: first, deeply analyzing multiple influencing factors of healthcare workers' flow experiences, especially variables with local cultural characteristics; second, developing intervention strategies applicable to clinical settings, through measures like optimizing work design and improving support systems, to help healthcare workers maintain their mental health while enhancing service efficiency, ultimately achieving bidirectional promotion of nursing service quality and practitioners' career development.

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