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Original Paper

Effectiveness of Artificial Intelligence-based Re-employment Support Tool (*Chokowa*) for Nurses: A Diversity Management Approach

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Abstract

Nursing shortages in Japan have intensified owing to rapid population aging and advances in medical technology. Encouraging "latent nurses," who are licensed but not currently practicing, to return to the workforce has been recognized as an effective measure to address this issue. However, effective strategies for re-employment support remain limited. This study examined the usefulness and limitations of an artificial intelligence (AI)-assisted re-employment support tool from the perspective of diversity management. A qualitative descriptive study was conducted using the Modified Grounded Theory Approach (M-GTA). Ten nurses (one male and nine female) who had reentered the workforce within the past year through the use of an AI-based support tool, *Chokowa* (developed by ConeXi Inc., Okayama, Japan), were interviewed. *Chokowa* is an AI-driven matching system designed to analyze nurses' work histories, preferences, and lifestyle factors to recommend suitable job opportunities, while incorporating human advisors who provide individualized follow-up support. Data were analyzed to generate concepts and categories explaining the re-employment process. The findings indicate that AI-assisted personalized support reduced psychological barriers and enhanced motivation for re-employment through timely job matching and lifestyle-oriented guidance. At the same time, participants emphasized the necessity of human counseling, continuous support, and flexible work environments. These results suggest that sustainable re-employment of nurses requires a hybrid model integrating AI technology with human support and organizational reforms, contributing to inclusive workforce development and the alleviation of nursing shortages.

1. Introduction

Nursing shortages in Japan have become increasingly severe due to rapid population aging and advancements in medical technology[1)]. While the demand for nursing personnel continues to rise, a considerable number of licensed nurses, often referred to as "latent nurses," remain out of practice. Encouraging these latent nurses to return to the workforce has been recognized as an effective strategy for mitigating healthcare staff shortages; however, concrete and sustainable re-employment support systems

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remain underdeveloped[2,3].

Traditional re-employment programs have mainly provided uniform refresher courses or short-term training. However, the reasons for leaving the nursing profession are diverse, including marriage, childbirth, childrearing, caregiving, and health issues. Accordingly, the needs and expectations of returning nurses vary greatly, and one-size-fits-all programs have failed to improve re-employment outcomes[4].

Recent literature has examined various approaches to nurse re-employment. For example, Takeuchi and Komizo[3] and Ueda et al.[4] analyzed the motivations and challenges of latent nurses, focusing on personal circumstances and workplace adaptation. These studies revealed important psychosocial aspects of returning to practice but did not explore the use of digital or AI-based technologies to facilitate re-employment. Furthermore, few studies have incorporated the concept of diversity management—which values individual differences in background and lifestyle—into the design of re-employment support. Previous studies have demonstrated that diversity management can enhance organizational efficiency and effectiveness[5]. Therefore, innovative models that combine technology-based personalization with organizational inclusiveness are required.

In this context, attention has turned to the potential of artificial intelligence (AI) for providing individualized and optimized support. AI can analyze complex factors such as work history, career preferences, and lifestyle conditions to recommend suitable employment opportunities. Such technology has the potential to overcome the limitations of conventional uniform support programs, as demonstrated by Baek and Cha[6], who showed that AI-assisted tailored interventions effectively reduced nurse burnout through personalized program delivery.

The present study aims to clarify the usefulness and limitations of an AI-assisted re-employment support tool for nurses, while exploring effective strategies that address their diverse needs. Specifically, the study examines the experiences of nurses who successfully reentered the workforce using *Chokowa* (developed by ConeXi Inc., Okayama, Japan)[7]—an AI-based system that integrates algorithmic job matching with personalized human counseling—to propose a comprehensive support model grounded in diversity management. This model is expected to contribute to the sustainable re-employment of latent nurses and the stabilization of the nursing workforce in healthcare settings.

This study selected *Chokowa* as the subject of analysis because it is one of the few AI-assisted re-employment support systems in Japan that integrates algorithmic job matching with human follow-up. This design aligns with the study's focus on hybrid support models combining technological efficiency and human empathy.

2. Methods

2.1 Study design

This study adopted a qualitative descriptive design based on the Modified Grounded Theory Approach (M-GTA). M-GTA is a qualitative research methodology that facilitates theory generation through the use of analysis worksheets. Concepts are generated, grouped into categories, and their relationships are illustrated to construct theoretical frameworks. Because M-GTA emphasizes the structuring of human interactions, it is considered particularly suitable for generating practical theories of human behavior[8,9].

In this study, the analysis theme was "nurses' experiences with AI-assisted re-employment support," and the focus persons were nurses who had reentered the workforce using an AI-based support tool.

2.2 Participants

The participants were nurses who had reentered the workforce within the past year using *Chokowa*, an AI-assisted re-employment support tool. Eligible participants were those who had been re-employed for at least one month at the time of data collection.

A total of ten nurses (one male and nine female) aged between 20 and 50 years participated. Potential participants were identified from the *Chokowa* user database, and invitations were sent via email or postal

mail. Of the 31 candidates contacted, ten consented to participate (response rate: 32.3%).

2.3 The AI-assisted re-employment support tool

Chokowa is an AI-driven matching platform designed to assist latent nurses in re-employment by analyzing their professional backgrounds, career preferences, and lifestyle conditions. Using machine-learning algorithms, it recommends job opportunities that align with individual needs, such as work-life balance, commuting distance, and desired work style (e.g., part-time or flexible hours).

The system also integrates human advisors who provide personalized consultation, emotional support, and follow-up after re-employment. Through this hybrid design, *Chokowa* combines the efficiency of AI-based matching with the empathetic understanding of human counseling, reflecting the principles of diversity management by tailoring support to each individual's life context.

2.4 Data collection

Data were collected through semi-structured interviews conducted between October and December 2024. Interviews were held either face-to-face or online (via Zoom), depending on participant preference. The interview guide included open-ended questions such as:

- "What factors influenced your decision to return to nursing?"
- "How did the AI tool assist or hinder your re-employment process?"
- "What kind of support did you find most helpful?"
- "What challenges did you face after re-employment?"

Each interview lasted approximately 45-60 minutes. Interviews were audio-recorded with an AI-assisted voice recorder and transcribed verbatim.

2.5 Data analysis

Data were analyzed using the procedures of M-GTA. An analysis worksheet was prepared for each concept, and these were integrated into categories that represented the participants' shared and differing experiences. Relationships among categories were illustrated to develop a conceptual framework explaining the process of nurse re-employment support.

To ensure credibility and reliability, two researchers independently coded the transcripts and compared their interpretations. Discrepancies were discussed until consensus was reached. Particular emphasis was placed on capturing the diversity of individual needs and contextualizing them within the framework of diversity management.

3. Results

Analysis of the interview data using the Modified Grounded Theory Approach (M-GTA) identified four major categories and 15 concepts that characterize the experiences of nurses who reentered the workforce through AI-assisted support. The categories are:

(1) *AI-based personalized support*,
(2) *Insufficient human support*,
(3) *Flexible work environment*, and
(4) *Changing perceptions of re-employment.*

The relationships among these categories are illustrated in Figure 1, and representative participant quotes are presented in Table 1. A mind map integrating the overall findings is shown in Figure 2.

3.1 Category 1: AI-based personalized support

This category was derived from six concepts related to the functions of the AI tool that provided tailored job recommendations and psychological support. Participants reported that AI-enabled job matching reduced anxiety by identifying workplaces that fit their life circumstances. Some participants stated that

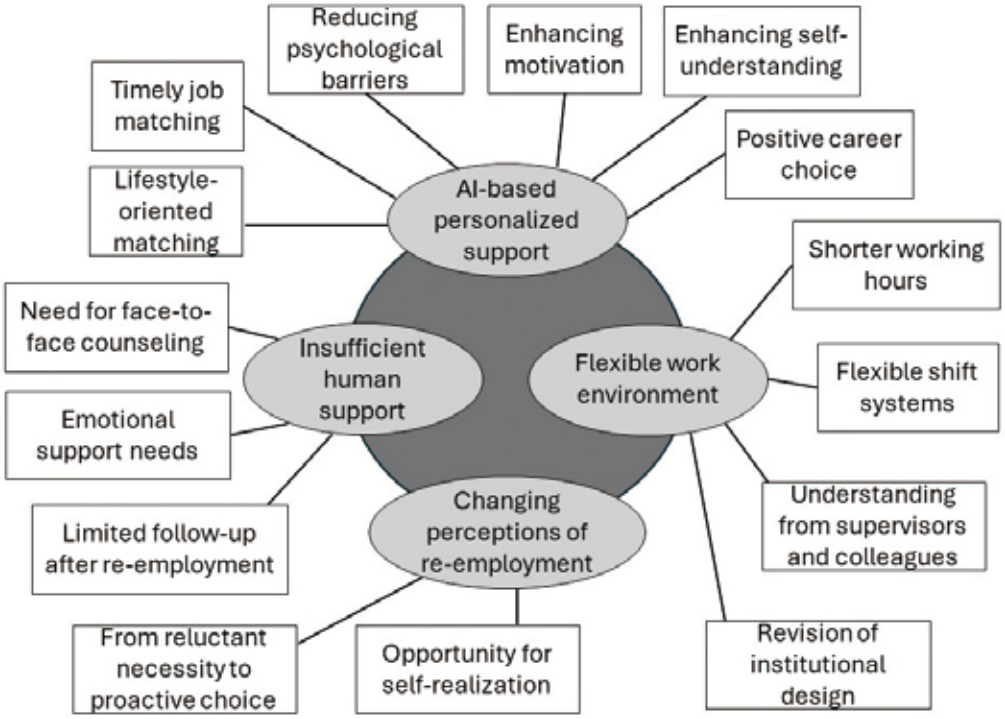

Figure 1 Categories derived from the modified grounded theory approach (M-GTA; AI-assisted nurse re-employment)

Table 1 Exemplar quotes by category (M-GTA)

	Category	Concept	Exemplar quote
1	AI-based personalized support	Timely job matching	The AI tool introduced me to a workplace that matched my lifestyle very quickly.
2	AI-based personalized support	Reducing psychological barriers	I felt less anxious because the suggestions were tailored to my situation.
3	Insufficient human support	Need for face-to-face counseling	It was reassuring to talk directly with a counselor, not only rely on the AI tool.
4	Flexible work environment	Flextime system	If I could work shorter hours or with flexible shifts, I would be more motivated to return.
5	Changing perception of re-employment	Means of self-realization	I decided to return not just for income, but to achieve personal growth and balance.

they "felt understood by the system" and "could find a position that matched their schedule and family needs." (Mentioned by 6 of 10 participants.)

These findings indicate that personalized AI recommendations facilitated both motivation and confidence during the re-employment process.

3.2 Category 2: Insufficient human support

Despite the effectiveness of the AI system, many participants expressed a need for more interpersonal communication and emotional support. Several mentioned that "it was difficult to make decisions without talking to a counselor" and that "human follow-up was limited after re-employment." (Mentioned by 5 of 10

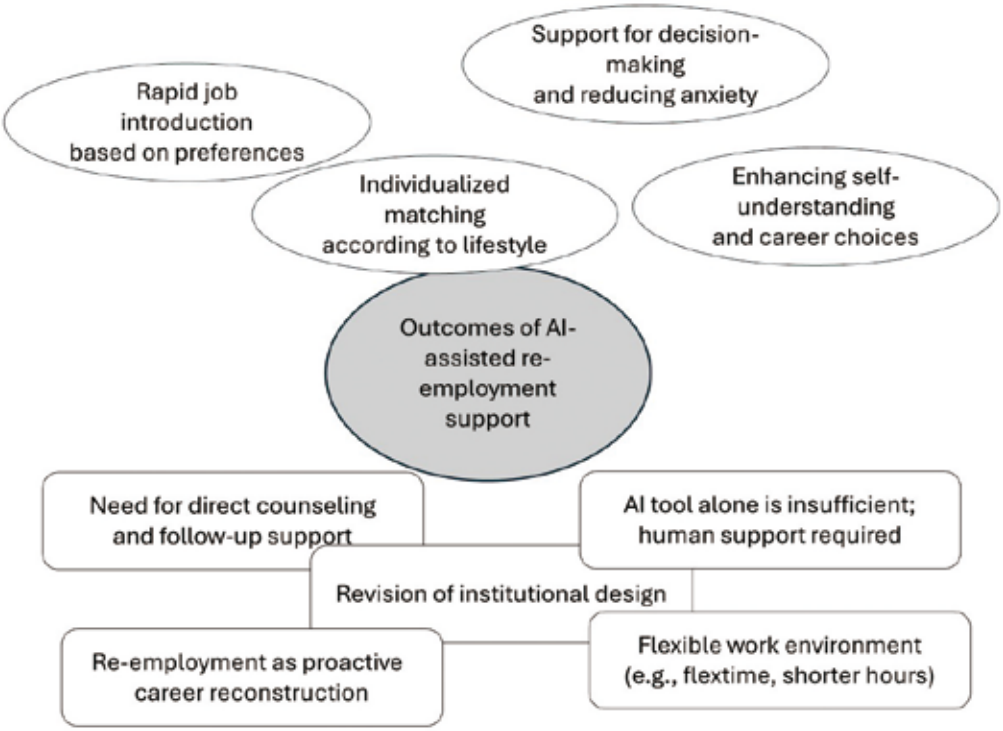

Figure 2 Mind map: effects (ellipses) and challenges (rectangles) of AI-assisted nurse re-employment

participants.)

This suggests that AI assistance alone could not fully address the emotional complexity and social aspects of returning to nursing.

3.3 Category 3: Flexible work environment

This category includes four concepts emphasizing workplace flexibility as a key condition for sustainable re-employment. Participants highlighted the importance of short working hours, flexible shifts, and understanding from supervisors and colleagues. One nurse mentioned that "the willingness of the workplace to accommodate family responsibilities made all the difference." (Mentioned by 4 of 10 participants.)

These results suggest that even with optimal job matching, institutional flexibility and system redesign are essential to maintain employment continuity and to align organizational conditions with individual lifestyles.

3.4 Category 4: Changing perceptions of re-employment

This category captures a cognitive and attitudinal shift among nurses regarding their return to work. Several participants described how AI recommendations and support experiences changed their view of re-employment—from a reluctant necessity to an opportunity for personal growth and self-realization. (Mentioned by 4 of 10 participants.)

Typical comments included "I regained confidence through re-employment" and "AI support made me realize my potential again."

This indicates that AI-assisted re-employment can promote positive identity reconstruction and long-term engagement with the profession.

3.5 Summary of findings

Overall, the results demonstrate that AI-based personalized support effectively reduced psychological

barriers and improved motivation among latent nurses, while human counseling, continuous follow-up, and flexible work environments remained indispensable.

The integrated analysis presented in Figure 2 highlights that sustainable re-employment requires a hybrid support model combining technological efficiency (ellipses: positive effects) with human empathy and organizational adaptation (rectangles: challenges and needs).

4. Discussion

This study examined the usefulness and limitations of an AI-assisted re-employment support tool for nurses through the lens of diversity management. The findings demonstrated that AI-based personalized support played a significant role in reducing psychological barriers and enhancing motivation for re-employment among latent nurses. At the same time, the necessity of human support, follow-up counseling, and workplace flexibility was reaffirmed as essential for sustainable re-employment.

The AI-based system *Chokowa* offered tailored job recommendations that reflected individual lifestyles and personal circumstances. Its algorithm analyzed nurses' work history, preferences, and desired working conditions to generate optimized job matches. This technological feature contributed to participants' perceptions of being "understood" and "supported" by the system, fostering confidence and a sense of readiness to return to practice. These results illustrate that AI-driven personalization can enhance the sense of psychological safety that is often lacking in conventional uniform training programs.

However, the results also revealed the limitations of relying solely on AI technology. Many participants expressed that interpersonal interactions were indispensable to their decision-making and emotional stability. Although *Chokowa* incorporates human advisors, the extent and frequency of such support varied, leading to gaps in communication and follow-up after re-employment. These findings underscore the importance of developing hybrid support models that integrate AI efficiency with the empathetic and contextual understanding that only human support can provide. This finding is consistent with previous qualitative research that conceptualized the readjustment process among previously inactive nurses and emphasized the need for continuous workplace support to facilitate their emotional and professional adaptation after returning to practice[10].

In addition, the study revealed that the experience of AI-assisted re-employment contributed to positive attitudinal changes among nurses. Re-employment, once perceived as a reluctant or temporary measure, was redefined as a proactive opportunity for self-realization and personal growth. Such a shift aligns with the principles of diversity management, which emphasize valuing individual differences and creating inclusive organizational cultures. The presence of flexible working arrangements—such as adjustable shifts, short working hours, and workplace understanding—was identified as a critical structural factor enabling the sustainability of these attitudinal changes.

From a theoretical standpoint, this study proposes a comprehensive model for sustainable nurse re-employment comprising four interrelated components:

(1) AI-based personalized support that offers optimized job matching and guidance,
(2) human counseling and continuous follow-up,
(3) flexible work environments that accommodate diverse life circumstances, and
(4) organizational reforms that institutionalize inclusivity and work-life balance.

This model operationalizes diversity management in the context of nursing workforce development and can serve as a framework for future re-employment programs in healthcare.

While the findings were derived from users of *Chokowa*, the conceptual framework proposed in this study may have broader applicability to other AI-assisted support systems. However, because functional designs differ among AI tools, further comparative studies are required to evaluate generalizability and tool-specific effects. Accordingly, the single-tool design represents the most significant limitation of this study.

This study also has several other limitations. First, the sample size was relatively small (n = 10), and all participants were Japanese nurses who used the *Chokowa* system, limiting the generalizability of the

findings. Second, the study focused on experiences within the first year of re-employment; thus, long-term outcomes such as job retention and career development were not evaluated. Third, cross-cultural comparisons were not included, and future research should examine whether similar AI-based approaches are effective in different sociocultural and healthcare contexts. Despite these limitations, the present findings provide valuable qualitative insights into how AI and human support can be harmonized to address the complex challenges of nurse re-employment.

Overall, this study demonstrates that AI-assisted tools have strong potential to enhance the efficiency and individualization of re-employment support. However, their effectiveness depends on integration with human-centered and organizational elements. Future studies should continue to refine AI-based support systems, explore their applicability across diverse populations, and evaluate their long-term impact on workforce sustainability and nurse well-being.

5. Conclusion

This study examined the usefulness and limitations of an AI-assisted re-employment support tool for nurses from the perspective of diversity management. The findings indicate that AI-based personalized support effectively reduces psychological barriers and enhances motivation among latent nurses. However, human interaction, continuous counseling, and flexible workplace environments remain indispensable for sustainable re-employment.

Based on the results, this study proposes a **comprehensive hybrid support model** for nurse re-employment consisting of four interrelated components:

(1) **AI-based personalized matching and guidance**, which provides individualized recommendations tailored to nurses' lifestyles and needs;

(2) **human counseling and continuous follow-up**, which ensure emotional support and trust;

(3) **flexible workplace systems**, including adjustable shifts and diverse working arrangements that enable work-life balance; and

(4) **organizational reforms**, which promote inclusivity and retention.

This model integrates technological innovation with human-centered and organizational perspectives, aligning with the principles of diversity management. By doing so, it not only facilitates the return of latent nurses but also contributes to creating inclusive healthcare environments that value diversity.

In conclusion, the effectiveness of AI-assisted support depends on its integration with human and institutional elements. Future research should evaluate the long-term outcomes of such hybrid models, examine their applicability in cross-cultural contexts, and refine AI systems to better address the evolving needs of healthcare professionals. Although developed based on *Chokowa*, the conceptual framework presented in this study may inform the design of future AI-based re-employment support systems across diverse healthcare settings.

Ethical considerations

This study was conducted with the approval of the Ethics Committee of Kawasaki University of Medical Welfare (Approval No. 24-061). All participants received a written and verbal explanation of the study's purpose, methods, and confidentiality measures, and written informed consent was obtained prior to participation. Privacy and anonymity were strictly protected by assigning identification codes to participants and removing any personally identifiable information during data transcription and analysis. Participation was voluntary, and participants were assured that they could withdraw from the study at any time without penalty.

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Conflict of interest

The authors declare that they have no conflicts of interest to disclose regarding this study.

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