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Research Paper

Knowledge, attitude and behaviour to evidence-based practice among psychiatric nurses: A cross-sectional survey

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ABSTRACT

Objective: To identify the status of knowledge, attitude, and behaviour toward evidence-based practice (EBP) among Chinese psychiatric nurses, and to examine the influencing factors of EBP behaviour.
Methods: We utilised a cross-sectional design. A total of 923 psychiatric nurses from 168 hospitals in 27 provinces in the mainland of China participated in our survey. The EBP questionnaire, the barriers to research utilisation scale and the facilitators to research utilisation scale were used for data collection via WeChat group from July 2018 to April 2019. Multiple regression analysis was used to analyse the influencing factors of psychiatric nurses' evidence-based practice behaviour.
Results: The score of Chinese psychiatric nurses' EBP attitude, behaviour and knowledge were 4.81 ± 1.34, 4.11 ± 1.36 and 3.53 ± 1.29, respectively. Multiple regression analysis showed that nurses' EBP behaviour was mainly determined by knowledge and attitude, which together explained 61.8% of the variance. The two top barriers were the dimensions of presentation and research. Facilitators include managerial support, employing nurses with research skills as models and providing advanced education on evidence-based nursing.
Conclusion: Psychiatric nurses have positive attitudes toward EBP, but their level of knowledge and behaviour is insufficient. Heavy workload, insufficient time, and a lack of knowledge and skills is the main barrier. Managerial support, employing nurses with research skills as models and providing advanced education are the main facilitators.

What is known?

- The complexity of psychiatric nursing and the diversity of types of mental disorders have presented a significant challenge to psychiatric nurses, and nurses play an important role in providing care to a diverse patient group suffering from mental disorders.
- Previous studies about nurses from other wards indicated nurses have positive attitudes toward evidence-based practice, but the level of their knowledge and behaviour is insufficient, and it has been demonstrated that some factors can facilitate or impede nurses' behaviour to evidence-based practice. However, few studies have been conducted so far among psychiatric nurses.

What is new?

- Psychiatric nurses in China hold a positive attitude to be engaged in the evidence-based practice process. However, the implementation of evidence-based practice remains a major problem.
- The major barriers that nurses confronted were the inability to understand the research or articles published in English, a lack of knowledge and skills, insufficient time, and work overload.
- Facilitators include managerial support, employing nurses with research skills as models and providing advanced education.

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1. Introduction

Mental illness is a major health problem worldwide. Over the last 30 years, mental disorders have persisted in more than 14% of age-standardised years lived with disability (YLD), and have been more than 10% prevalent in all 21 Global Burden of Disease (GBD) regions. In China, Zhang et al. discovered that the prevalence of mental disorders was 17.1% in Shandong Province among 28,194 adults [1]. Additionally, a national cross-sectional study that investigated the prevalence of mental disorders in 31 provinces with 32,552 participants over the age of 18 showed that the weighted lifetime prevalence of any mental disorder (excluding dementia) was 16.6%, and the 12-month prevalence was 9.3% [2]. Psychiatric nurses play an important role in providing care to a diverse patient group suffering from mental disorders, ranging from adolescents in special care units to senior patients in hospitals and community homes, which demonstrates the complexity and diversity of nursing care in inpatient psychiatric settings [3]. The increasing number of people with mental disorders and the diversity of types of mental disorders mean that nurses must have deep, complex knowledge of these diseases; this also presents a significant challenge to psychiatric nurses [4,5]. However, many psychiatric nurses still provide services to patients based on their experience [6], which does not meet the needs of patients and their families [7]. Additionally, a systematic review conducted by Christensen et al. in 48 countries with 9 mental disorder groups revealed that the cost of mental disorders was a heavy burden for patients' families [8].

Psychiatric nurses need to use evidence-based practice (EBP), clinical expertise, accurate assessments, and consideration of patient preferences and values to cope with the complexity of psychiatric nursing, meet patient care requirements, and lighten the financial burden on patients and their families [9]. Happell et al. [10] pointed out that evidence-based nursing practice was beneficial for improving the physical health of people with mental disorders, increasing patient satisfaction, and promoting patient safety and efficacy. Therefore, it is essential to implement EBP for psychiatric nurses and patients [11].

Changing the attitude and enhancing the knowledge of clinical nurses are the beneficial preconditions of putting EBP into effect [12]. Hence, an increasing number of researchers have investigated the impact of nurses' knowledge, attitude, and behaviour toward EBP [13,14]. Most previous studies have shown that registered nurses in general wards in Saudi Arabia, South Korea, and China, or midwives in Iran [12,15,16], all had a positive attitude toward EBP, but their level of knowledge and behaviour regarding EBP was fairly low. However, little attention has been given to the status of knowledge, attitude, and behaviour regarding EBP among psychiatric nurses. Yadav and Fealy [17] only analysed the sources of EBP-related knowledge among psychiatric nurses through a cross-sectional survey but neglected the status of knowledge, attitude, and behaviour in relation to EBP.

The identification of barriers and facilitators can promote the implementation of EBP. A number of barriers to EBP have been pinpointed among clinical nurses and midwives, such as a lack of time and authority to change practices, a lack of administrative support, limited access to resources, poor understanding of statistical analysis methods, and insufficient language and computer skills [18–21]. On the other hand, facilitators to EBP include leadership support and the pervasiveness of web-based social services such as easy access to information [22–24]. However, little attention has been paid to the facilitators and barriers to EBP among psychiatric nurses. Yadav and Fealy [25] found some facilitators and barriers to EBP among psychiatric nurses, which involved a lack of time, insufficient resources, and little coordinator support. The sample of this study only included 145 participants, which is quite small. Based on the complexity of psychiatric nursing and the diversity of types of diseases among these patients, and the fact that EBP is still somewhat new in nursing in China, psychiatric nurses may encounter difficulties in implementing EBP. Therefore, a survey of Chinese nurses is needed to identify factors that could influence the adoption of EBP in clinical practice.

Thus, it is imperative to investigate the situation of knowledge, attitude, and behaviour regarding EBP among Chinese psychiatric nurses, and to examine the facilitators and barriers to EBP. In our view, this is the first national survey to investigate EBP-related knowledge, attitude, and behaviour among Chinese psychiatric nurses.

2. Methods

This was a national cross-sectional study. We conducted this study following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.

2.1. Setting and participants

The study was carried out in seven regions in the mainland of China: eastern, southern, middle, northern, north-western, south-western, and north-eastern. Firstly, we conveniently sampled three provinces from each region. Then various types of hospitals in each region were screened and considered for recruitment, i.e. tertiary and secondary hospitals, teaching hospitals, general and specialized hospitals, Traditional Chinese Medicine hospitals, and county hospitals; at least one hospital of each type from each province were included. Finally, psychiatric nurses working in the recruited hospitals were invited to participate in the survey.

A convenience sample of 923 psychiatric nurses from 168 tertiary or secondary hospitals in 27 provinces participated in our survey. The participants included registered psychiatric nurses who had worked in tertiary or secondary hospitals for at least six months and attained an intermediate or senior professional title. We excluded nurses who had been on consecutive vacations for more than three months in the past year, had severe physical or mental disorders, or were not currently working in nursing. Finally, 939 nurses volunteered to participate, but only 923 valid questionnaires were collected, with an effective response rate of 98.3%.

2.2. Measures

The survey consisted of five parts: demographic characteristics, scientific research activities and achievements, the EBP Questionnaire (EBPQ), the Facilitators to Research Utilisation Scale (FRUS), and the Barriers to Research Utilisation Scale (BRUS).

2.2.1. Demographic characteristics

We gathered basic information about the participants using a self-designed demographic questionnaire, including gender, age, year(s) of work in the department, first degree, highest degree, form of employment, professional title, marital status, situation of one's children, and the level of hospitals where they work. We chose these factors based on previous research [26].

2.2.2. Scientific research activities and achievements

We used a self-designed questionnaire to collect information about scientific research activities and achievements, including the first or correspondent authorship of published journal papers, being a project leader of scientific research projects, participanting in scientific research projects, achieving scientific research awards or patents, having an oral or poster presentation at domestic and

foreign academic conferences, and serving as professional journal reviewers or editorial board members.

2.2.3. The EBP questionnaire (EBPQ)

The EBPQ was developed by Upton et al. [27] and translated into Chinese by Yang et al. [28] to capture nurses' knowledge, attitude, and behaviour in terms of EBP. The questionnaire has a 7-point rating scale ranging from 1 = 'never' to 7 = 'often'. It consists of 25 items with three dimensions: behaviour (6 items), attitude (5 items), and knowledge (14 items). A higher score indicates a higher overall level of EBP cognition. The Cronbach's α coefficient is 0.87, and the sub-dimensional Cronbach's α coefficients are 0.85, 0.79 and 0.91.

2.2.4. The barriers to research utilisation scale (BRUS)

The BRUS was developed by Funk et al. [29] and translated into Chinese by Qiu et al. [30], and was designed to analyse factors that might hinder the implementation of EBP. The scale is a 4-point rating scale containing 30 items. Based on the needs of the study and national conditions, we deleted items 1 and 27. The final version consisted of 28 items grouped into 4 dimensions: presentation (6 items), research (6 items), nurse (8 items), and setting (8 items). A higher score indicates a greater barrier to research utilisation. The Cronbach's α coefficient is 0.981, and the sub-dimensional Cronbach's α coefficients are 0.906, 0.923, 0.945, and 0.937.

2.2.5. The facilitators to research utilisation scale (FRUS)

The FRUS was developed by Hutchinson et al. [31], translated into Chinese by Shi et al. [32], and designed to analyse factors that might help nurses in implementing EBP. This scale contains 8 items on a scale rating 1 to 4 (1 = to no extent; 4 = to a great extent). A higher score indicates a greater role of promotion in research utilisation. The Cronbach's α coefficient is 0.967.

2.3. Data collection

In China, nursing quality control centres are responsible for managing all hospitals in every province. At the beginning of the survey, we asked the administrators of nursing quality control centres in the provinces for their permission and coordination to conduct the study. A coordinator was arranged to be present at each nursing quality control centre and hospital. An electronic version of the questionnaire was sent to all coordinators at the nursing quality control centres, who sent it to the supervising nurses in each hospital via a WeChat group. Finally, the supervising nurses from the 168 hospitals sent the questionnaire to all psychiatric nurses with an intermediate or senior professional title. We collected the questionnaires, which were completed and submitted anonymously, within the following 2 weeks; we gathered the data from July 2018 to April 2019.

2.4. Statistical analysis

We analysed the data using SPSS 23.0. We used descriptive statistics such as the mean, standard deviation, and percentage to describe the participants' sociodemographic characteristics, their scientific research activities and achievements, as well as facilitators and barriers. Then, we calculated the scores of the EBPQ and each dimension. Finally, we performed multiple regression analysis to examine the effect of the independent variables on the scores of the psychiatric nurses' EBP behaviour. We employed the backward method to obtain the largest number of explanatory variables. Two researchers rechecked the data.

2.5. Ethical considerations

This study was approved by the Institutional Review Board of the Peking University, Beijing (IRB00001052-18013). Written consent was obtained from all participants, all participants and nursing quality control centres understood all aspects of the informed consent prior to participating.

3. Results

3.1. Participant characteristics

A total of 923 psychiatric nurses from 168 tertiary or secondary hospitals in 27 provinces participated in the study. Their mean age was 38.5 years (*SD* = 7.89), and most nurses (86.3%) were married. Most of the participants were registered nurses (73.1%) and worked in clinical departments (91.5%). Approximately 91.0% of the participants were female, and nearly 78.0% were from Class A tertiary hospitals. Of the participants, approximately 76.0% had intermediate titles. The demographic characteristic of participants is presented in Table 1.

3.2. Scientific research activities and achievements

Few psychiatric nurses were involved in scientific activities or had research achievements. Only half of the psychiatric nurses had published papers as the first or corresponding author. Among these, only 80 (8.7%) had published science citation index papers. Further, only 6.7% of the psychiatric nurses had carried out research projects as project leaders, and 155 had attended scientific research conferences (16.8%). Moreover, 60 (6.5%) psychiatric nurses had

Table 1
Demographic characteristic of participants (n = 923).

Characteristics	*n* (%)
Gender	
Female	836 (90.6)
Male	87 (9.4)
Age, years, *Mean* ± *SD*	38.50 ± 7.89
Marital status	
Married	797 (86.3)
Single/divorced/widowed	126 (13.7)
Number of children	
≥ 1	792 (85.8)
0	131 (14.2)
Years as a nurse, *Mean* ± *SD*	17.58 ± 8.77
First educational level	
Junior college or below	790 (85.6)
Undergraduate or above	133 (14.4)
Highest educational level	
Junior college or below	268 (29.0)
Undergraduate or above	655 (71.0)
Professional title	
Intermediate title	707 (75.6)
Senior title	216 (23.4)
Form of employment	
Formal	675 (73.1)
Contract	248 (26.9)
Level of working hospital	
Class B tertiary hospital or below	201 (21.8)
Class A tertiary hospital	722 (78.2)
Department	
Nursing department	28 (3.0)
Clinical department	845 (91.5)
Others	50 (5.4)
Knowledge dimension score, *Mean* ± *SD*	56.62 ± 18.09
Attitude dimension score, *Mean* ± *SD*	24.67 ± 8.16
Practice dimension score, *Mean* ± *SD*	23.05 ± 6.68

Note: Data are *n* (%), unless otherwise indicated.

Table 2
Multiple linear regression analysis of influential factors of evidence-based practice ($n = 923$).

Variable	Unstandardized Coefficients (B)	Standardized Coefficients (β)	t	P
Constant	3.008	0.648	4.639	< 0.001
Attitude dimension				
X_{26}: My workload is too great for me to keep up to date with all the new evidence.	0.878	0.173	6.337	< 0.001
X_{30}: Evidence based practice is fundamental to professional practice.	0.600	0.120	4.103	< 0.001
X_{34}: Evidence based practice is a special and distinctive care method.	0.564	0.106	3.606	< 0.001
Knowledge dimension				
X_{13}: Information Technology skills.	−0.428	−0.073	−2.194	0.028
X_{15}: Converting your information needs into a research question.	0.547	0.097	2.092	0.037
X_{18}: The ability to retrieve information and evidence.	0.902	0.158	3.085	0.002
X_{19}: The ability to analyse critically evidence against set standards.	1.232	0.218	3.741	< 0.001

Note: $R = 0.786$, $R^2 = 0.618$, Adjusted $R^2 = 0.614$, $F = 164.275$, $P < 0.001$.

attended domestic and international academic conferences, and 44 (4.8%) had compiled and edited textbooks as the chief editor. Only 51 (5.5%) psychiatric nurses had received awards for their scientific research, and 16 (1.7%) had obtained patents. A few psychiatric nurses had served as journal reviewers 12 (1.3%) or editorial board members 9 (1.0%).

3.3. Scores of each dimension of the EBPQ

The mean score of the EBPQ was 104.33 ($SD = 29.49$), and the overall mean EBPQ score was 4.17 ($SD = 1.18$). Among the subscales of the EBPQ, the mean behaviour score was 4.11 ± 1.36, which indicates that the psychiatric nurses exhibited moderate behaviour. The scores of the attitude dimension ranged from 5.00 to 35.00 (23.05 ± 6.68), and the highest score was 4.81 ± 1.34, which shows that the psychiatric nurses had relatively positive attitude toward EBP. The scores of the knowledge dimension ranged from 14.00 to 98.00 (56.62 ± 18.09), and the lowest score was 3.53 ± 1.29, suggesting that the psychiatric nurses exhibited a low level of knowledge of EBP.

3.4. Multiple linear regression analysis of influential factors of EBP

We performed multiple regression analysis to analyse the indicators influencing the behaviour dimension, of which demographic data, knowledge dimension(X_{12} to X_{25}), and attitude dimension(X_{26} to X_{35}) acted as independent variables when entered into the model (admission = 0.05, exit = 0.10). The results show that 7 factors were finally entered into the regression equation (see Table 2). The standard regression coefficient reveals that knowledge had more influence on EBP than attitude. In the backward regression analysis, the model explained 61.8% of the variables in the total EBP behaviour score. That is, these factors could explain 61.8% of the variation in EBP behaviour (adjusted $R^2 = 61.4\%$).

3.5. Facilitators to research utilisation

The total score of the FRUS ranged from 8.00 to 32.00 (23.88 ± 5.24), and the overall mean score was 2.99 ($SD = 0.66$). The score of psychiatric nurses with intermediate or senior professional titles was 23.88 ($SD = 5.24$), with a total average score of 1.24 ($SD = 0.44$). The score of psychiatric nurses with a master's degree or above ranged from 19.00 to 32.00 (26.29 ± 4.07), with the total average score ranging from 1.00 to 4.00 (3.29 ± 0.51). Table 3 presents the top four items of the facilitator.

3.6. Barriers to research utilisation

The overall mean score of barriers to research utilisation was 2.82 ($SD = 0.61$). The presentation dimension (2.88 ± 0.64) scored the highest, which signifies that research report quality and accessibility are the main barriers for nurses to obtain EBP knowledge and translate it to clinical practice, and nurses' competency in academic communication needs to be improved, followed by the setting dimension (2.81 ± 0.63), which indicates that psychiatric nursing managers played an important role in EBP. Scores for each dimension of barrier factors are outlined in Table 4.

Table 3
Top four items of the facilitator ($n = 923$).

Rank	Facilitator item	*Mean ± SD*
1	Enhancing managerial support and encouragement of research implementation.	3.07 ± 0.75
2	Employing nurses with research skills to serve as role models.	3.04 ± 0.76
3	Advanced education to increase your research knowledge base.	3.02 ± 0.75
4	Increasing the time available for reviewing and implementing research findings.	3.00 ± 0.75

The results show that the greatest barrier factor was "research reports/articles were not readily available" (3.00 ± 0.76). The next item was "statistical analyses are not understandable" (2.94 ± 0.77), followed by "nurses do not have time to read literature" (2.88 ± 0.75). The scores of the top ten barrier items are presented in Table 5.

4. Discussion

The psychiatric nurses generally had a positive attitude toward EBP, but their level of knowledge and EBP behaviour lagged behind. This finding is consistent with these consequences among clinical nurses and midwives, who have shown active attitudes toward EBP, yet behaviour and knowledge remain insufficient [12,15,16,33]. More interestingly, this study revealed facilitators and barriers to applying EBP for psychiatric nurses. Specifically, managerial support and encouragement of research, hiring nurses with research skills as models, and providing advanced education were the main facilitators. The major barriers that nurses confronted were the inability to understand research articles published in English, a lack of knowledge and skills, insufficient time, and work overload.

4.1. Psychiatric nurses generally hold a positive attitude towards EBP

In accordance with previous studies of a variety of professional health care groups [34], the psychiatric nurses in our study generally held positive attitude toward EBP. Importantly, more than two-thirds of the participants positively agreed that there is an "evidence-based practice which is fundamental to professional practice" and that it is necessary to "change practices due to

Table 4
Sub-dimensional scores of the Barriers Scale and rank based on mean of item scores ($n = 923$).

Rank	Dimension	Number of items	Dimension score (*Mean* ± *SD*)	Average item score (*Mean* ± *SD*)
1	Presentation dimension	6	17.25 ± 3.82	2.88 ± 0.64
2	Setting dimension	8	22.50 ± 5.06	2.81 ± 0.63
3	Nurse dimension	8	22.42 ± 5.03	2.80 ± 0.63
4	Research dimension	6	16.66 ± 3.75	2.78 ± 0.63
	Total score of barriers factors		78.87 ± 17.03	2.82 ± 0.61

Table 5
Top ten barrier items and scores ($n = 923$).

Rank	Dimension	Item	*Mean* ± *SD*
1	Presentation	Research reports/articles are not readily available.	3.00 ± 0.76
2	Presentation	Statistical analyses are not understandable.	2.94 ± 0.77
3	Setting	The nurse does not have time to read literature.	2.88 ± 0.75
4	Setting	There is insufficient time on the job to implement new ideas.	2.87 ± 0.74
5	Presentation	The research is not relevant to the nurse's practice.	2.86 ± 0.78
6	Presentation	The research is not reported clearly and readably.	2.85 ± 0.75
7	Presentation	Implications for practice are not made clear.	2.85 ± 0.74
8	Nurse	The nurse does not feel capable of evaluating the quality of the research.	2.85 ± 0.73
9	Nurse	The nurse is unaware of the research.	2.85 ± 0.72
10	Setting	The nurse does not feel she/he has enough authority to change patient care procedures.	2.84 ± 0.75

evidence found", and they "welcomed questions about their practices". These findings suggest that psychiatric nurses have realised the importance of EBP. However, the lowest score was 4.20 ($SD = 1.61$) for the item "cannot update evidence to practice in the face of workload", denoting that they were unable to obtain new evidence due to a lack of time and an increasingly heavy workload. These results support the findings of Zhou [35] in that "lacking time and busier work were the greatest barriers to research utilisation". To our knowledge, it is only by recognising the active role of EBP that we can promote the development of EBP. Thus, it is imperative to engage in conscious behaviour and to strengthen advanced education to enhance nurses' research knowledge. Similar to knowledge-attitude-behaviour theory, attitude is the foundation of behaviour; for example, a person's knowledge directly affects his attitude and indirectly affects behaviour through attitude. As Verloo et al. [36] also pointed out, a correct understanding and positive attitude toward EBP are initiators of practical activities. Moreover, the multiple regression analysis that we conducted showed that attitude is an important factor affecting behaviour, signalling that psychiatric nurses have an important basis for EBP.

4.2. A lack of knowledge towards EBP among psychiatric nurses

Although psychiatric nurses have a good attitude toward EBP, their level of knowledge of EBP is low. This result is in accordance with previous studies [37]. The average knowledge dimension score in our study was 3.53 ($SD = 1.29$), implying that psychiatric nurses have a low level of knowledge. Psychiatric nurses in this survey reported that their poorest knowledge skills were "researching" and "critically analysing evidence against set standards and retrieving evidence". The reason may be that undergraduate students form the backbone of clinical nursing practice and that the higher nursing education system is not perfect in China. At present, the training mode of scientific research education for undergraduate students is not yet mature [38]. The scientific research education of undergraduate nursing began in the 1990s [39], so prior to this, students who graduated in nursing entered a clinical setting with insufficient scientific research ability, and the situation of junior college students was even worse. At the same time, evidence-based nursing education was carried out exclusively in postgraduate courses [40]. Therefore, it is necessary to carry out targeted scientific research education and evidence-based nursing training for nurses to achieve the abovementioned goals. In addition, multiple regression analysis indicate that knowledge is an important factor affecting behaviour, meaning that nurses have an important basis for EBP. Thus, we can conclude that a lack of knowledge is the other reason impeding nurses' implementation of EBP. Our findings are congruent with other studies that revealed factors influencing the implementation of evidence in Chinese nursing practice [24]. Therefore, to encourage psychiatric nurses to put EBP into effect, it is necessary to put the transformation of evidence-based knowledge into action. We suggest that hospital managers work with researchers to conduct evidence-based knowledge sessions, and that they hold clinical problem feedback meetings regularly to solve the problems that nurses encounter during their practice according to the best evidence available.

4.3. Poor practice capacity towards EBP among psychiatric nurses

In addition, most of our participants reported poor practice in EBP, especially when it is related to "critically appraising the literature", "evaluating the outcomes of my own practice" and "integrating the evidence". The mean score of the practice dimension was 4.11 ($SD = 1.36$), which signals that their practice was at the middle level. Only half of the respondents stated that they have a good score in "formulating clear questions". Our results imply that psychiatric nurses have a limited ability to bring EBP into force. One reason may be that EBP is still relatively new in nursing in China, and psychiatric nurses may encounter difficulties in implementing EBP. We recommend that hospital managers provide a supportive environment and systematically guide practice strategies for psychiatric nurses, thus promoting the development of projects and encouraging nurses to actively participate.

4.4. Heavy workload, insufficient time, and a lack of knowledge and skills are the main barriers

In our study, perceived barriers for psychiatric nurses to apply evidence include heavy workload, insufficient time, and a lack of knowledge and skills. These findings are consistent with a study among psychiatric nurses exploring sources of knowledge and barriers to putting EBP into effect conducted in Saudi Arabia [20].

Specifically, “research reports or articles are not readily available”, “statistical analyses are not understandable” and “nurses do not have time to read literature” are the primary barriers for psychiatric nurses. These barriers are also rated as important in other studies [18,41,42]. Hence, we suggest that researchers work with nurse practitioners to translate knowledge into action to bridge the gap between knowledge and practice. This recommendation is consistent with the opinion of Graham et al., who demonstrated that the model of knowledge to action (KTA) could provide best practice methods for nurse practitioners [43].

4.5. Managerial support, employing nurses with research skills as models and providing advanced education is main facilitators

We also discovered some facilitators for psychiatric nurses to apply evidence. Our results show that enhancing management support and encouraging research implementation could push the progress of EBP even further. The majority of the participants stated that hiring nurses with research skills as models and increasing research knowledge through advanced education would facilitate their engagement in the process. Our findings are similar to other studies that reported facilitators to EBP [23,24,44]. Thus, it is important for psychiatric nurses to obtain advanced education and to take training courses, strengthen their learning, and to hire nurses with research skills as models to accelerate the progress of EBP.

4.6. Limitations of the study

There are a few limitations in this study. First, although this was a national cross-sectional survey with a large sample size, it is difficult to obtain causation from the variables. Second, the data are slightly out of date and can only reflect the results of the time period in which we conducted the study. Third, the sample only consisted of Chinese psychiatric nurses in tertiary or secondary hospitals. Further research should recruit all specialist nurses from hospitals and collect the latest data for analysis.

4.7. Relevance to clinical practice

Based on our findings, we recommend that psychiatric nurses enhance their knowledge, attitude, and behaviour regarding EBP. Our findings indicate that their knowledge and practice are inadequate, including research ability, critically analysing evidence against set standards and retrieving evidence, evaluating the outcomes of their own practice, and integrating evidence. To accelerate EBP in nursing, first, organisations and nursing leadership should execute scientific research education and evidence-based training based on the needs of psychiatric nurses. Second, we suggest that hospital managers work with researchers to conduct evidence-based knowledge sessions, and that they hold clinical problem feedback meetings regularly to solve the problems that nurses encounter during practice according to the best evidence available. Furthermore, we recommend that hospital managers make efforts to provide a supportive environment, make time and resources available for nurses, and systematically guide practice strategies for psychiatric nurses to become more involved in scientific research. Third, nurses should hold positive attitudes and beliefs about EBP and actively attend interactive educational workshops that enhance their knowledge and skills. They need more time away from their daily nursing practice to strengthen their knowledge and skills. Additionally, having consistent access to mentor support and guidance for research implementation could motivate the progress of EBP. Finally, we advise researchers to work with nursing practitioners to translate knowledge into action, thus bridging the gap between knowledge and practice and facilitating EBP application in practice.

5. Conclusion

By analysing 923 psychiatric nurses from 168 tertiary or secondary hospitals in China, our findings indicate that psychiatric nurses generally regard EBP positively, which suggests that they are willing to be involved in the process of EBP. However, we identified that their knowledge and practice are inadequate, such as research ability. We found that psychiatric nurses with more knowledge and attitude tend to use EBP. Moreover, the use of EBP is not optimistic. Some advice could help nurses improve their knowledge, but how to ensure that the knowledge and skills nurses acquire can be used in nursing practice remains to be explored. In addition, managerial support, employing nurses with research skills as models, increasing the time available for research, and offering advanced education may enhance nurses’ positive beliefs and attitude regarding EBP and ultimately promote EBP use in practice. In the future, It is suggested that hospital managers provide a supportive environment, regularly collect clinical problems encountered by nurses and systematically provide practical strategy guidance for psychiatric nurses by conducting feedback meetings, in order to promote the development of projects and encourage nurses to actively participate.

Data availability statement

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

Credit authorship contribution statement

Ce Li: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing - original draft, Writing - review & editing, Project administration. **Liyu Li:** Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing - review & editing. **Zhiwen Wang:** Conceptualization, Methodology, Validation, Funding acquisition, Writing-review & editing, Supervision, Project administration.

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Declaration of competing interest

The authors declare no conflict of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijnss.2022.06.016.

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