American Journal of Infection Control 47 (2019) 123–127

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major Article

Infection preventionists' challenges in psychiatric clinical settings

Pei-Hsuan Li RN, MSN [a], Shou-Yu Wang RN, PhD [b], Jung-Ying Tan RN, PhD [b], Li-Hung Lee RN, PhD [c], Cheng-I Yang RN, PhD [c,*]

[a] Department of Nursing, Tsaotun Psychiatric Center, Ministry of Health and Welfare, Nan-Tou, Taiwan
[b] Department of Nursing, HungKuang University, Taichung, Taiwan
[c] Department of Nursing, Da-Yeh University, Changhua, Taiwan

Key Words:
Experiences
Infection preventionists (IPs)
Psychiatric ward
Qualitative research

Background: Infection preventionists (IPs) play an important role in preventing health care–associated infections in a health care system. However, the limitations of the clinical setting and the unique characteristics of psychiatric patients could be barriers to effective infection prevention. The purpose of this study was to understand how IPs perceived their challenges and how these challenges negatively affect their infection prevention work in psychiatric clinical settings.

Methods: A descriptive, qualitative research approach was used in this study. Thirteen Taiwanese psychiatric IPs were interviewed in semistructured interviews. Data were transcribed and then analyzed by thematic analysis.

Results: This analysis identified 6 themes: (1) lack of preservice training in psychiatric infection control, (2) insufficient staffing in practice, (3) working within environmental limits, (4) patient noncompliance, (5) undervaluation of the importance of infection control by professionals, and (6) involvement of hospital administrators.

Conclusions: The implementation of effective infection prevention in psychiatric clinical settings may be strongly related to the factors of sufficient training and IP staffing while relying on collaboration among patients and clinical professionals and on the full support of administrators.

Health care–associated infections (HAIs), which develop in patients under medical care, are among the most important public health problems in the world, and in Taiwan as well.[1,2] According to World Health Organization estimates, approximately 15% of all hospitalized patients suffer from HAIs. These infections occur during hospital stays and cause prolonged stays, disability, and economic burdens.[2] In the United States, an estimated 40,000-99,000 deaths result from severe HAIs each year.[3] The US health care sector spends $28.4-$33.8 billion per year on treating nosocomial infections.[4] Although HAIs occur in psychiatric settings as well, very few reports with statistics can be found in the literature.[1]

In 2005, the Centers for Disease Control in Taiwan issued the "Handbook of Operation Procedures of Infection Control in Hospitals."[5] Under these regulations, all hospitals are required to conduct regular infection-related monitoring to monitor the quality of infection control procedures.[5] Additionally, hospitals across Taiwan are required to establish infection control units and employ sufficient numbers of infection preventionists (IPs) (1 IP per 300 beds) to coordinate the work of infection prevention and ensure a safe environment for both patients and health care workers.[6]

In the United States, most IPs have primary health care backgrounds, such as nursing, laboratory science, or public health.[7] Similarly, in Taiwan, most IPs first work as registered nurses. In the United States, the IP training course is a 23-hour online self-study program.[8] In Taiwan, the Infection Control Society of Taiwan was instructed by the Ministry of Health and Welfare to design and implement certifiable infection control training courses specifically for nurses. To become an IP in Taiwan, a candidate must have at least 1 year of nursing experience, 20 hours of infection prevention training, and a further 160 or 480 hours of clinical practice. These training courses include content on the general knowledge and skills associated with infection prevention.

Unlike the general hospital setting, psychiatric hospitals are mostly closed environments. They have a high patient density and high levels of social interaction, which may increase the transmission of bacteria or viruses and the likelihood of an outbreak.[9] In addition,

* Address correspondence to Cheng-I Yang, RN, PhD, No. 168, University Rd, Dacun, Changhua 51591, Taiwan.
E-mail address: ciyang@mail.dyu.edu.tw (Cheng-I Yang).
Conflicts of interest: None to report.

https://doi.org/10.1016/j.ajic.2018.08.010
0196-6553/

hospitalized psychiatric patients, who exhibit symptoms or have cognitive impairment, may have difficulty following instructions given to them by nurses and IPs. This backdrop presents unique challenges to IPs in implementing effective infection control in psychiatric clinical settings.[10,11]

To date, very few studies have specifically addressed infection control and prevention at psychiatric institutions[12] or the experience of the IPs. The purpose of this study was to understand how the IPs perceived their challenges and how these challenges negatively affect their infection prevention work in psychiatric clinical settings.

METHODS

A descriptive, qualitative research approach and purposive and snowballing sampling were used in this study. After obtaining study approval by the institutional review board of Tsaotun Psychiatric Center (No. 104055), we invited 4 IPs working in a nearby psychiatric hospital. Through them, we invited another 9 IPs from 6 psychiatric hospitals and 2 general hospitals with psychiatric facilities to participate in the study. All IPs in this study met the criteria of (1) current employment as an IP, providing services for the patients and health care professionals in a psychiatric setting; (2) at least 1 year of working experience in infection control; and (3) willingness to participate and the ability to coherently share their experiences. These IPs provided informed consent before data collection.

Data collection

Data were collected by the first author in individual, semi-structured interviews conducted in 2016. Participants were asked to describe their experiences of working as an IP in psychiatric settings, particularly what challenges they had encountered, how these challenges influenced their work of infection prevention, and how they managed these challenges. All interviews lasted around 1 hour, were conducted in conference rooms in the psychiatric wards, and were digitally recorded with the participants' consent.

Data analysis

All digitally recorded interviews were transcribed verbatim and analyzed by all of the authors using the thematic analysis developed by Braun and Clarke.[13] Each entire transcription was read and reread to obtain an overall understanding of the text and to familiarize the authors with the participants' experiences of working as IPs in psychiatric clinical settings. We then generated the initial codes from the initial list of ideas about the data. The relationships between codes and themes were carefully considered during the process. Themes were generated by reviewing and comparing the initial codes. In the end, 6 themes were identified and named.

Trustworthiness

Trustworthiness of the data was ensured by 4 criteria: credibility, transferability, dependability, and conformability.[14] The credibility of the data was ensured by the authors' expertise in infection prevention, psychiatric nursing, and qualitative research, which allowed a fuller understanding of the participants' experiences. Transferability was increased by collecting data from several hospitals in different locations in Taiwan, including study participants with different characteristics, and describing the study context to allow readers to determine if the findings are transferable to other situations. Dependability was promoted in all interviews conducted by the first author, and all coauthors met frequently to discuss the data analysis, check and recheck the labeling, and sort and name the themes during analysis for verification. Conformability was enhanced by extracting participants' experiences as thick descriptions of the study phenomena for each theme.

RESULTS

The participants, 13 IPs, were all women and aged between 31 and 48 years (mean = 41.9). All of them had bachelor degrees in nursing. Eleven (84.6%) were working in psychiatric hospitals; the other 2 were working in general hospitals. Their nursing experience ranged from 9-26 years (mean = 18.6), and their psychiatric working experience ranged from 4-26 years (mean = 12.1). Their experience in infection prevention ranged from 2-17 years (mean = 8.1).

Data analysis revealed that the participants' experiences of working as IPs in the psychiatric wards and associated challenges were captured by 6 themes: (1) lack of preservice training in psychiatric infection control, (2) insufficient staffing in practice, (3) working within environmental limits, (4) patient noncompliance, (5) undervaluation of the importance of infection control by professionals, and (6) involvement of hospital administrators.

Theme 1: lack of preservice training in psychiatric infection control

Most participants stated that the knowledge related to infection control that they had learned in the IP training tended to be "medical and surgical" and lack "psychiatric" knowledge and skills. They perceived that such knowledge and skills from the preservice training did not totally meet their needs because they were working in psychiatric settings. Many participants expected the IP training to include a period of clinical practice in a psychiatric setting.

> *My clinical practice for IP training was in a general hospital. I learned how to care for patients with intravenous catheters, and to collect and interpret data on the occurrence of infections happening in medical and surgical settings. In my opinion, these knowledge and skills are not helpful, especially because I work in psychiatric settings. (B)*

> *If possible, I hope to have an opportunity, two weeks for example, to observe how an IP prevents and manages an outbreak of infection in a psychiatric setting. I think this may helpful for the new IPs when they finish the training and return to their psychiatric settings. Not like us, who lack experience; I have to learn from my mistakes and search for information helplessly. This process is harder. (L)*

Theme 2: insufficient staffing in practice

The national IP manpower calculation formula is 1 IP per 300 beds. About half of the studied hospitals (5 of 9, 55.5%) did not arrange enough IP staffing to do the work of infection control, even if the hospitals had enough qualified IPs.

> *In my case, there are more than 920 beds in my hospital. According to the regulations, we need at least 4 IPs. We do have 4 staff who are qualified IPs with national licenses. It looks like that we fulfill the requirements for hospital accreditation. However, to be honest, I am the only one in my hospital in charge of all the work of infection prevention. (C)*

Worse, in some cases, owing to insufficient staffing, some of the participants were scheduled by their managers to provide clinical nursing care in addition to their routine infection prevention work, especially when the wards were grossly understaffed. Most of the participants worried that the insufficient staffing in practice would negatively affect their work of infection prevention.

My hospital runs 2 recovery wards for psychiatric patients. My supervisor asked me to be a part time nurse there. It occupies much of my time. (J)

Theme 3: working within environmental limits

The clinical environment of the psychiatric setting provided the IPs with some concerns related to the quality of the implementation of effective infection prevention. According to the participants, psychiatric wards tend to be located in older buildings or in restructured spaces of the medical and surgical wards of general hospitals. Therefore, the nature of the structure, space, and settings of the psychiatric wards was far from ideal for effective infection prevention. All IPs noted that the ward setting was detrimental for the delivery of safe and effective infection prevention. For example, patients often lived in crowded rooms with closed or locked doors; additionally, the air conditioning was not specifically designed for infection control. The IPs perceived that the physical settings of the clinical environment could contribute to the challenge of implementing an effective infection control policy for patients and fellow health care workers.

Limited by the setting, we only have a single pathway. The delivery flow we can have does not fulfill the basic requirements of hospital accreditation. We were asked by the committee members to view this as a very serious mistake that needed to be solved. (H)

Additionally, insufficient space is available for isolation when necessary. A secure room is a place in a psychiatric ward specifically designed for seclusion. It is a short-term, emergency location designed to protect and enhance the safety of the patients in the clinical setting. However, it is not uncommon for this room to be used by IPs as an alternative place for patient isolation in cases of suspected infection, to prevent further outbreaks.

We use the seclusion room as the isolation room. To be honest, the seclusion room is not an ideal place for isolation, but we have no choice. (E)

Theme 4: patient noncompliance

The quality of infection control procedures depends on patients' compliance with instructions on infection prevention provided by the IPs. The common symptoms of psychiatric patients, such as hallucinations, delusions, and cognitive impairment, in addition to poor hygiene and the inability to follow the IP's directions for infection control, increase the difficulty of delivering effective infection control.

Many patients in the psychiatric wards have bad hygiene habits. In fact, we keep announcing the importance of hand washing and teaching them how to wash their hands correctly. To be honest, some patients are just seriously influenced by their psychiatric symptoms and unable to follow our directions. We really can't get them to wash their hands (H).

Patients wear masks when nurses are around; when the patients walk into their rooms, their masks do not cover their mouths and noses. (D)

To prevent an infection outbreak, as mentioned previously, IPs are required to isolate an infected patient or a patient with a suspected infection in a seclusion room or in the patient's own room. Some participants explained that patients with psychiatric symptoms or cognitive impairment were not aware of the meaning of isolation and perceived it as a form of punishment. As a result, to prevent isolation, some patients did not report or even concealed symptoms of infection from nurses or IPs.

If the patient is secluded in a small room and not allowed to go out, [the patient] may become agitated. The problem is that the psychiatric patients do not like to be secluded. . .they will conceal their physical condition from us (G).

Theme 5: undervaluation of the importance of infection control by professionals

Since psychiatric patients may have difficulty fully understanding the instructions given to them by the IPs, the work of infection prevention in psychiatric settings largely depends on support from fellow health care professionals. However, according to the participants, not all health care professionals have a full understanding of effective infection control, and many may undervalue its importance. Some participants described being questioned by fellow health care professionals about the necessity and effectiveness of infection prevention strategies.

A manager used to question me about the effect of what I had done. He asked me, "Does this really make it any better?" [He] may also ask me, "Do you really think the patients will not be infected anymore after all this has been done?" (B)

Negative professional attitudes were also evident from the lack of attendance at infection-related in-service education and training programs. Many of the physicians and nurses did not like to attend the training courses, citing busy routine clinical work as their main excuse.

We did provide a lot of infection-related in-service education for the professionals regularly. Although [the doctors] did appear in the conference room in the beginning, they left immediately after they signed the attendance list. The clinical staff have no time to attend the courses. This is one of the most difficult parts of my work. (F)

Nurses are generally so busy providing routine care that infection control directions given by the IP may sometimes be seen as extra, unnecessary work, especially when patients do not always follow the nurses' directions. The IPs perceived that they were viewed by the nurses as troublemakers.

Certainly they (the nurses) might complain to me that patients' hand washing would increase their workload. In the past, it took only half an hour to serve lunch to all the patients in the ward, but now that they were asked to push and make sure the patients washed their hands before and after lunch, it might take 1 hour to finish lunch. All of their work would be delayed. (E)

Theme 6: involvement of hospital administrators

Superintendent administrators, nurse managers, and the directors of the nursing departments were viewed by the IPs as the key persons who could contribute to successful infection prevention in the psychiatric wards. All participants noted that the level of involvement of the

hospital administrators would affect the implementation of effective infection control, especially in the face of patient noncompliance and undervaluation of the importance of infection control by professionals. One participant described her experience of how the support and help from the hospital superintendent facilitated the successful implementation of infection prevention.

Since 2013, when a new superintendent came to our hospital, I have felt that the implementation of infection control has been getting easier for me. Now it is he who leads us to do the work of infection prevention. For Zika, he asked me to give a short presentation on Zika to a meeting of managers and required the top managers to be present. Then the superintendent asked the director of the nursing department to share the Zika infection prevention–related knowledge with the head nurses after the meeting. Therefore, everyone from the top manager to the head nurses knew how to prevent Zika virus infection. Then the head nurses pushed their staff to follow through on the work. (K)

However, many of the participants did not feel that they received enough support from their administrators. Without that support, the implementation of infection control was difficult, leading to occupational frustration. Some participants shared these experiences.

I need help, especially when there is an outbreak. One time I asked for help from my director and reported something to her, but she told me, "This is your business and your problem of time management." I felt I got no support from her. (M)

DISCUSSION

This study aimed to understand how psychiatric IPs perceive their experiences of their work in psychiatric settings. Some critical issues that emerged from our 6 themes regarding the nature of the challenges of implementing effective infection prevention in psychiatric settings are worthy of further discussion.

In this study, all participants had previously worked in nursing, and they had become IPs after training courses. This pattern is similar to those reported in previous studies conducted in South Korea and the United States.[7,15] One important difference is that the training programs for IPs in Taiwan are longer than those in the United States. Most participants perceived the preservice training, which lacked content on psychiatric infection prevention and skills, to be insufficient for their clinical needs. According to the participants, the preservice IP training courses were not appropriately designed for the clinical environments of psychiatric wards. The implementation of effective infection prevention in psychiatric wards may have different requirements from similar activities in acute medical-surgical units or intensive care units. The standards used for the prevention and control of infection in acute settings should be different from those in psychiatric wards. It is therefore suggested that the design of preservice IP training should consider the backgrounds and learning needs of the trainees. With more appropriate training, psychiatric IPs would be better able to implement what they learned in the training program. Hospital administrators are advised to provide the IPs with further in-service education to equip them with multiple skills.[16] The nature of psychiatric patients and the clinical environment are particular obstacles that the IPs need to overcome to implement effective infection control.

The unique characteristics of psychiatric patients may hinder the implementation of effective infection control. Participants reported that psychiatric patients did not always fully cooperate with hygienic measures, such as mask wearing, as found in other studies.[10] Although many successful experiences of increasing patients' hand washing by educating patients on the importance of hand hygiene have been reported in critical units,[17] it is questionable whether such educational strategies can be applied to all psychiatric patients. In the clinical setting, psychiatric patients' perceptions of what they are told in relation to infection prevention policies might raise concerns related to their psychiatric symptoms and potentially impaired cognition. For example, in this study, the participants noted that psychiatric patients often perceived confinement to seclusion rooms, used for isolation to prevent outbreaks, as punishment, and that such perceptions led to concealment of infective symptoms to prevent isolation. Patients' informational needs, cultural backgrounds, and knowledge of infection prevention should be taken into account to increase the effectiveness of communication.[16] According to de Aguiar et al,[18] communicating with psychiatric patients to increase their compliance in infection prevention could be challenging; however, better results could be achieved by considering the uniqueness of each patient and trying to build a trust relationship with the patient.

Our findings also revealed that most hospitals in this study had not arranged sufficient numbers of IPs for the clinical settings. The reason was not that the hospitals were unable to hire enough qualified, licensed IPs but that the IPs were asked by their administrators to work as psychiatric nurses in the wards or assigned additional responsibilities. We are concerned that insufficient IP staffing in practice could seriously damage the quality of infection prevention and threaten the safety of patients and health care workers in hospitals.[15] It appears that these administrators overlook the importance of infection prevention[6] and lack respect for the profession of the IPs.

Additionally, the IPs perceived that effective infection prevention and control rely on the collaboration of health care workers in the hospital to minimize the risk of cross infection,[19] especially in psychiatric settings, in which patients have a tendency toward noncompliance. However, the participants perceived that those health care professionals' attitudes toward the implementation of infection control procedures were not always positive, as reported previously.[20] Research shows that undervaluation of the importance of infection control by professionals and noncompliance may arise from several complex factors, including inadequate training. It is reported that appropriate training programs can greatly improve professionals' knowledge and attitudes toward the practice of infection control.[11] Based on our findings, we recommend that greater emphasis be placed on professionals' moral and ethical obligations related to infection prevention strategies.[4] Even though all IP participants in this study had several years of infection prevention experience, more in-service education would advance their skills and competencies in areas such as influencing and negotiating or communicating and collaboration,[16,21] which would allow them to effectively communicate with other health care workers to increase professional cooperation.

Attitudes toward safety can have a large effect on the extent to which staff members adhere to safety protocols.[22] Similarly, most IPs in this study stressed the importance of hospital administrators taking a positive attitude toward effective infection prevention. Organizational mechanisms for training support, appraisal, and clinical governance are significant determinants of effective practice and successful change.[23] The IPs required the support of their hospital administrators, most notably the hospital superintendent, because pressure from individuals in higher positions could influence the degree to which health care professionals follow infection control policies.[24] However, infection prevention and control require everybody's efforts,[19] so it is important for hospital administrators to create a culture of safety for their patients and staff.

Limitations

Despite the contribution of our study to understanding IPs' challenges in psychiatric clinical settings, certain limitations must be

noted. First, the small sample size of 13 IPs might not fully represent the experiences of IPs in Taiwan. Second, all participants were recruited from central Taiwan. Therefore, the perceptions presented here cannot be generalized to IPs serving in other countries, which may have different health care circumstances.

Relevance for clinical practice

Our findings have 2 main implications. First, our findings increase our understanding of the perceived challenges of Taiwanese IPs in psychiatric clinical settings and the need to provide IPs with sufficient preservice and in-service education in communication, leadership, and teamwork skills. Second, the work of infection prevention is everyone's business, and hospital administrators should understand the importance of infection control and involve themselves in this vital work to create a safe and supportive climate in their hospitals.

CONCLUSIONS

IPs in Taiwan may encounter the challenges of a lack of preservice training in psychiatric infection control, insufficient staffing, environmental limits, patient noncompliance, undervaluation of the importance of infection control by professionals, and insufficient support from hospital administrators. Continued education for psychiatric patients, professionals, and IPs is recommended. For the patients, the unique characteristics and needs of each patient should be considered before such education. A well-designed educational program would increase patients' understanding of infection prevention and potentially decrease patients' misunderstandings and unnecessary anxiety associated with isolation in a seclusion room while potentially increasing their cooperation with nurses and IPs. For health care professionals, courses should be designed not only according to guidelines or scientific knowledge; such education may also help them reflect on their professional responsibility to protect their patients and increase their belief in the importance of infection prevention. Well-designed preservice and in-service training programs to meet the needs of psychiatric IPs are recommended. IPs also have a responsibility to increase their professional knowledge and develop their communication, leadership, and teamwork skills to understand the concerns of psychiatric patients and professionals and effectively increase the collaboration among themselves, patients, and professionals. Finally, the involvement of administrators is very important; therefore, administrators are advised to assume responsibility for creating a culture of infection prevention and common consensus among all health care workers in the hospital to ensure the quality of the implementation of infection prevention and to provide resources (staffing, space, and money) and supervision as necessary.

Acknowledgments

We would like to express our sincere appreciation to the 13 participants for their generous contributions.

References

1. Chuang YC, Chen YC, Chang SC, Sun CC, Chang YY, Chen ML, et al. Secular trends of healthcare-associated infections at a teaching hospital in Taiwan, 1981-2007. J Hosp Infect 2010;76:143-9.
2. Khan HA, Baig FK, Mehboob R. Nosocomial infections: epidemiology, prevention, control and surveillance. Asian Pac J Trop Biomed 2017;7:478-82.
3. Malliarou M, Sarafis P, Zyga S, Constantinidis T. The importance of nurses hand hygiene. Int J Caring Sci 2013;6:327-31.
4. Mortell M. Hand hygiene compliance: is there a theory-practice-ethics gap? Br J Nurs 2012;21:1011-4.
5. Lin MY, Wang FD. The role transformation of infection control staff, from the data collecting to intervention. J Infect Control 2005;15:179-88.
6. Yang MH, Chang LH, Peng MY, Tsou MC, Chang FY. The introduction of infection control standards of hospital accreditation in Taiwan and USA. Yuan-Yuan Nurs 2007;1:48-55.
7. Reese SM, Gilmartin HM. Infection prevention workforce: potential benefits to educational diversity. Am J Infect Control 2017;45:603-6.
8. New York State Health Facilities Association. Infection preventionist training course. Available from: http://update.nyshfa.org/en/1612010/1/6708/Infection-Preventionist-Training-Course.htm. Accessed September 5, 2017.
9. Shen FL, Liu W, Xue M. Analysis of related factors of respiratory infection in male patients with mental illness. Occupation Health 2005;21:1757-8.
10. Fukuta Y, Muder RR. Infections in psychiatric facilities with an emphasis on outbreaks. Infect Control Hosp Epidemiol 2013;34:80-8.
11. Freeman S. Charge nurses' perceptions of infection control. Ment Health Pract 2011;14:26-9.
12. Piai-Morais TH, Fortaleza CM, de Figueiredo RM. Good practice for infection prevention and control at a psychiatric hospital in Brazil. Issues Ment Health Nurs 2015;36:513-7.
13. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psycho 2006;3:77-101.
14. Lincoln YS, Guba EG. Naturalistic inquiry. Newbury Park (CA): Sage Publications; 1985.
15. Kim KM, Choi JS. Self-perceived competency of infection preventionists based on Benner's framework: a nationwide survey in Korea. Appl Nurs Res 2015;28:175-9.
16. Murphy DM, Hanchett M, Olmsted RN, Farber MR, Lee TB, Haas JP, et al. Competency in infection prevention: a conceptual approach to guide current and future practice. Am J Infect Control 2012;40:296-303.
17. Haverstick S, Goodrich C, Freeman R, James S, Kullar R, Ahrens M. Patients' hand washing and reducing hospital-acquired infection. Crit Care Nurse 2017;37:e1-8.
18. de Aguiar VS, de Oliveira AM, de Araújo LCA. Hygiene and mental health: body care in the clinical intervention in a CAPSI. J Res Fundam Care Online 2015;7:2582-90.
19. Mayfield JL. Infection prevention and perioperative professionals: a crucial partnership. AORN J 2014;100:435-8.
20. Rigby R, Pegram A, Woodward S. Hand decontamination in clinical practice: a review of the evidence. Br J Nurs 2017;26:448-51.
21. Aziz AM. Infection prevention and control practitioners: improving engagement. Br J Nurs 2016;25:297-302.
22. Davis KK, Harris KG, Mahishi V, Bartholomew EG, Kenward K. Perceptions of culture of safety in hemodialysis centers. Nephrol Nurs J 2016;43:119-27.
23. Griffiths P, Renz A, Rafferty AM. The impact of organization and management factors on infection control in hospitals: a scoping review. Available from: https://www.kcl.ac.uk/nursing/research/nnru/publications/Reports/Infectioncontrolreport.pdf. Accessed April 25, 2018.
24. Winship S, McClunie-Trust P. Factors influencing hand hygiene compliance among nurses: an integrative review. Kai Tiaki Nurs Res 2016;7:19-26.