An Integrative Review: Nurses & Artificial Nails

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NUR 4222

November 27, 2015
Abstract

The goal of this integrative review is to evaluate the literature regarding the use of artificial nails among healthcare workers and infections. Infections can be spread via a healthcare worker as a vehicle wearing artificial nails. Outbreaks of infections related to healthcare workers wearing artificial nails can cause infections even deaths. Research showed healthcare workers should not wear artificial nails and policies should reflect this in the healthcare settings. The research articles discussed were searched through the library of Bon Secours Athens, PubMed, Mary Immaculate Hospital library, and Google Scholar. The search yielded 20 research articles and 5 met the PICO question criteria. The results of the five articles demonstrated support for implementing policies of healthcare workers wearing natural, short, clean nails in the healthcare setting. Also, the findings showed patients would benefit from healthcare workers not wearing artificial nails in the healthcare setting. Limitations to the review included the present researcher is a first time research student which adds to a lack of experience in researching and lack of time to concentrate on the assignment. Future research could include a study of how healthcare workers reply to the policy of no artificial nails in the healthcare setting and promoting interest of the healthcare workers to promote patient safety by keeping their nails natural, short and clean.
An Integrative Review: Nurses & Artificial Nails

The purpose of this study is to provide an integrative review of the literature articles on whether healthcare workers should wear artificial nails in the workplace. The objective of the research was to determine whether patients with nurses who have artificial nails, compared with those with nurses who have natural nails in the acute care setting have a higher risk for infection during their hospital stay. One focus of the present writer is the artificial nails and the microflora left behind on the hands after washing with soap or alcohol (McNeil, Foster, Hedderwik, & Kauffman, 2001). Research shows that hands of healthcare workers play a significant role in the transmission of nosocomial infections (Kennedy, Edward, & Fraser, 2004). The research also demonstrates that although there are guidelines in place for hand hygiene in healthcare organizations, there is evidence that compliance with the guidelines are disappointing (Kennedy et al., 2004). This area interests this researcher due to the seriousness of infections and a possible safety hazard for the patient would be a nurse wearing artificial nails. Therefore, the proposed PICO question by this researcher is as follows: Are patients with nurses who have artificial nails, compared with those with nurses who have natural nails in the acute care setting at risk for higher infection rates during their hospital stay?

Research Design, Search Methods & Search Outcomes

The research design is an integrative review of research articles on nurses wearing artificial nails and infection rates in the acute care setting. The research articles discussed were searched through the library of Bon Secours Athens, PubMed, Mary Immaculate Hospital library and Google Scholar. The present researcher searched terms ‘artificial nails infection’ and ‘artificial nails infection healthcare workers’. The google scholar search yielded eight articles and PubMed yielded 12 articles. Some of the articles had to be obtained from the Mary
Immaculate Hospital librarian due to a purchase disclosure. The researcher could only keep a sixteen year approach to the issue by searching qualitative, quantitative, and integrative nursing research articles written between 1998 and 2014. All articles were published in English. The articles had to pertain to the researcher’s PICO question, “Are patients with nurses who have artificial nails, compared with those with nurses who have natural nails in the acute care setting at risk for higher infection rates during their hospital stay?” The articles were chosen based on the following criteria: nurses wearing artificial nails and how much bacteria were under them; impact of washing healthcare workers hands and how much bacteria flora was left on them; survey of knowledge of the nurses about artificial nails and infection rates; and infections being traced back to nurses wearing artificial nails in an acute health care setting. The research articles were reviewed based on the criteria and the PICO question significance. The articles that did not meet the criteria were excluded from the integrative review. The review of the PICO question significance produced five articles in which, two were integrative, two were quantitative, and one was qualitative.

The reviewed articles indicate that healthcare workers should not wear artificial nails in the healthcare settings (Edel, Houston, Kennedy, & LaRocco, 1998; Kennedy et al., 2004; McNeil et al., 2001; Parry et al., 2001; White, 2013). A compiled summary is presented in Table 1 for the articles researched. The researcher organized the review in several topics: healthcare workers view on artificial nails in the healthcare setting; healthcare workers as vehicles of infections; whether different percentages exist with pathogens found under artificial nails and natural nails; and outbreaks of infections related to healthcare workers wearing artificial nails can cause infections even deaths. Thus, concluding that healthcare workers should not wear artificial nails and policies should reflect this in the healthcare settings.
In a qualitative study to survey the knowledge of the beliefs of healthcare workers, only 35% knew that healthcare workers who had artificial nails were associated with a higher bacterial count on their hands (Kennedy et al., 2004). Even if knowledge about the role artificial nails play with infections might be an issue, healthcare workers were more likely to wear artificial nails in the healthcare environment (Kennedy et al., 2004). In a quantitative study, the research showed that even though healthcare workers were officially banned from wearing artificial nails by the Association of Operating Nurses, they were more likely to wear artificial nails (McNeil et al., 2001). The researcher found it very interesting that in the United States alone, every year it is estimated that over $265 million is spent on acrylic nails and related products (McNeil et al., 2001).

Healthcare workers are vehicles for patient infections even when environmental sources can be found as a source (Parry et al., 2001). The healthcare workers carry the source on their hands. In the quantitative study of three surgeries, one nurse was implicated in the transmission of pathogens. The nurse was wearing artificial nails in the operating room (Parry et al., 2001). Despite the use of alcohol based cleansers and hand soap washing, healthcare workers are still vehicles for transmission of pathogens (McNeil et al., 2001). In a qualitative study, artificial nails have been associated with the transmission of Pseudomonas aeruginosa (Kennedy et al., 2004). People who wear artificial nails continuously are more likely to carry fungal and other infections (Edel et al., 1998).

There are different percentages that exist with pathogens found under artificial nails and natural nails. Wearing artificial nails can cause bacteria by providing a route of entry through trauma or dermatitis; bacteria can grow with the hydration increased by the high permeability of the acrylic monomers; and artificial nails can lift at the edges providing shelter for
microorganisms to grow and handwashing to miss the area (White et al., 2013). Healthcare workers who wear artificial nails have 86% pathogens on their hands after cleansing with soap compared with healthcare workers who had natural nails had 35% pathogens isolated (McNeil et al., 2001). The percentages serve as a measureable tool in the data collection and determine that artificial nails should not be worn by healthcare workers. The percentages are appropriate and are a positive contribution to the study. The subungual region of the fingernails were more likely to harbor microorganisms than any other areas of the hands (McNeil et al., 2001). An interesting fact was that healthcare workers who wear artificial nails are more likely to not cleanse their hands as well to help protect their manicure (McNeil et al., 2001).

Outbreaks of infections related to healthcare workers wearing artificial nails can cause infections even deaths (White et al., 2013). In Oklahoma City, 11 deaths over a 14-month period was linked to two nurses wearing artificial nails and longer nails (White et al., 2013). In an outbreak of Candida albicans three patients were confirmed to have deep wound infections due to a single nurse who had artificial nails (Parry et al., 2001). In a children’s hospital in New York City, an infection outbreak in a NICU setting was related back to a single nurse who was wearing artificial nails (White et al., 2013). In all five studies, it was suggested that policy be made to prohibit artificial nails in the healthcare settings. Education was recommended for healthcare workers on the current data about artificial nails and infections (White et al., 2013). The outbreak of surgical site infections emphasized a need for policies against artificial nails in the healthcare settings (Parry et al., 2001). The outcomes of the studies reflect that healthcare workers should not be wearing artificial nails and policies for healthcare settings should be made.
Variables Used For Analysis

Two of the five articles research studies utilized quantitative variables, one within an integrative study, to measure the percentage of bacteria on the healthcare workers hands. They both used a control group of healthcare workers who wore their nails naturally short and the other group of healthcare workers either wore their nails long or had artificial nails (McNeil et al., 2001). One quantitative study used a case medical record review which revealed the infections led back to one healthcare worker who wore artificial nails (Parry et al., 2001). The one qualitative study used volunteers and a questionnaire assessing the beliefs, practices of healthcare workers towards wearing artificial nails and longer nails (Kennedy et al., 2004).

Findings, Implications, and Results

The findings of the researcher’s integrative review reveal artificial nails should not be worn in the healthcare setting. Artificial nails can be vehicles of pathogens from a healthcare worker to a patient in a healthcare setting. The PICO question addressed was do patients with nurses who have artificial nails, compared with those with nurses who have natural nails in the acute care setting at risk for higher infection rates during their hospital stay? The research revealed that healthcare workers can be vehicles for infections by the use of artificial nails. Thus, the answer to the PICO question was addressed through this integrative review. The qualitative study by Kennedy et al. (2004), indicated healthcare organizations need to carry out their policies for the use of artificial nails because the policies are not being adhered to by the workers. In McNeil et al.’s (2001) quantitative study, they suggest the importance of handwashing and proper hand hygiene. Also, in McNeil et al.’s (2001) quantitative study, the authors suggest that healthcare workers who wear artificial nails are more likely to have a higher count of pathogens under their nails through statistical data compiled through their study.
The implications of the findings suggest that healthcare workers should wear their nails natural, short and clean to avoid being a vehicle for pathogens. The use of artificial nails creates an environment conducive of a vehicle for pathogens on healthcare workers hands. The McNeil et al.’s (2001) study results support that healthcare workers who wear artificial nails are more likely to have a higher count of pathogens under their nails.

There was several limitations that the researcher identified in the integrative research study. Healthcare workers could have influenced the quantitative studies by not washing their hands correctly to policy (McNeil et al., 2001). The integrative review is a last class assignment for NUR 4222 being done by the researcher. The present researcher is a part-time undergraduate nursing student with a full-time registered nursing job and other commitments. This is the first research class the present researcher has taken hence there is a significant inherent lack of knowledge affecting the current assignment.

**Conclusion**

In conclusion, the research of this integrative review revealed the importance of healthcare workers not wearing artificial nails in the healthcare settings. The use of artificial nails in the healthcare settings could promote potential pathogens. The healthcare workers wearing artificial nails would be vehicles for these potential pathogens to patients. The study was well organized, covered a topic important to all patients and healthcare workers. The study related to the PICO question do patients with nurses who have artificial nails, compared with those with nurses who have natural nails in the acute care setting at risk for higher infection rates during their hospital stay? The research also strongly suggests to educate healthcare workers to improve adherence to policies banning or discouraging artificial nails.
References


## Appendix: NUR 4222/Nursing Research
### Artificial Nails and Infections

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