

Non-Compliance with Hand Hygiene Standards among Nurses in Windhoek, Namibia

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Abstract

Compliance with hand hygiene standards remains a challenge to many healthcare workers even though there is adequate scientific evidence supporting its role in improving health provider and patient safety, reducing costs and creating a positive working environment. This article describes factors that contribute to non-compliance with hand hygiene standards among nurses in Windhoek, Namibia. A non-experimental, quantitative descriptive and cross-sectional design was utilised. The target population consisted of nurses working at one state-owned hospital in Windhoek. A probability, stratified random sampling method was used to select a representative sample of 170 nurses from three categories of nurses, namely registered nurses, enrolled nurses and auxiliary nurses. A self-administered questionnaire was used to collect data, which were analysed by using SPSS version 23.0. According to the results, there were more institutional than personal factors that contribute to non-compliance with hand hygiene standards among the nurses. Institutional factors included inadequate resources for hand hygiene, the absence of role models such as colleagues and supervisors, workshops, seminars and continuing educational courses on hand hygiene as well as the absence of incentives or encouragement for compliers and sanctions against non-compliers with hand hygiene standards. The key recommendations included organisational commitment to hand hygiene, the creation of an organisational climate and culture that support hand hygiene, supervision and monitoring of hand hygiene, the supply of hand hygiene agents that do not cause skin dryness, and in-service education that focuses on hand hygiene.

Keywords: compliance, non-compliance, hand hygiene practices, healthcare-associated infections, standard precautions



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Introduction and Background Information

Hand hygiene is the leading and low-cost measure to prevent cross-transmission of microorganisms. Its beneficial effects reverse the impact of healthcare-associated infections that result in prolonged hospital stay, long-term disability and increased resistance of microorganisms to antimicrobials, massive additional financial burdens and emotional stress for patients and their families (WHO 2009a, 12). However, compliance with hand hygiene standards remains a challenge to many healthcare workers even though there is adequate scientific evidence supporting its role in improving health provider and patient safety, reducing costs and creating a positive working environment.

The selection of hand hygiene as the first pillar to promote the Global Patient Safety Challenge of the WHO World Alliance for Patient Safety signifies its importance in the patient safety agenda (WHO 2009a). The World Health Organization guidelines used to improve patient and provider safety and to prevent the spread of healthcare-associated infections include the “My 5 Moments for Hand Hygiene” approach. This approach forms part of the global awareness initiative for health workers’ hand hygiene and include washing hands before patient contact, before an aseptic procedure, after exposure to body fluids, after patient contact and after contact with the patient’s surroundings (WHO 2009a, 4).

Recent systematic reviews of studies on compliance with hand hygiene conducted in various hospital and nursing homes settings reveal low compliance rates among nurses in developed and developing countries (Abdella et al. 2014, 4; Ahlström and Valles 2014, 22; Darawad et al. 2012, 1; Sakihama et al. 2014,2). In Namibia, the Ministry of Health and Social Service’s reports indicate that hospital infection is a major contributor to morbidity, mortality, increased length of hospital stay and other associated costs for the patient and the healthcare services (Namibia MOHSS 2011, 9). According to the quarterly report by the Infection Control Department of the hospital where the study was conducted, up to 52 patients (5.3%) contracted hospital-acquired infections during the April to June reporting period (Namibia MOHSS 2014, 2). The report further states that an annual average 21.2 per cent of the admitted patients contracted hospital-acquired infections.

Statement of the Research Problem

In 2014, a compliance audit of hand hygiene was conducted at the hospital where the study was done, and the results revealed an unacceptably low rate of compliance with hand hygiene of just above 40 per cent among nurses (Namibia MOHSS 2014). The low compliance rates with hand hygiene standards among nurses, despite the availability of the hospital infection prevention and control hand hygiene policy guidelines prompted the researcher to study the factors that contribute to non-compliance at the hospital where the study was done.

Purpose of the Study

The purpose of this study was to describe factors that contribute to non-compliance with hand hygiene standards among nurses at one public hospital in Windhoek, Namibia.

Research Methodology

The study was conducted in Windhoek, Namibia, at one state-owned referral hospital situated in the Khomas Region in Windhoek. A non-experimental, quantitative descriptive and cross-sectional design was used. The target population included nurses who worked at the selected hospital in Windhoek, Namibia. Probability, stratified random sampling was used for selecting a representative sample of 170 nurses from three categories of nurses, namely registered, enrolled and auxiliary nurses. The data were collected by means of a self-designed, structured self-administered questionnaire. The questions that were formulated were guided by the objectives of the study and the literature review, using a four-point rating scale with the response categories of never, seldom, sometimes and always. Data collection was done in May 2016, and the analysis was performed by means of the Statistical Package for Social Sciences (SPSS), version 23.0, using descriptive statistics.

The validity was considered in the construction of the questionnaire in consultation with a statistician and content experts. Before the questionnaire was administered to the study participants, it was pretested on a convenience sample of five nurses who did not participate in the actual study. The feedback from the experts and the results of the pretest were used to improve the questionnaire. Cronbach's alpha reliability coefficient was used as an estimate of the internal consistency of the whole questionnaire, which was deemed acceptable at 0.60. Yusoff (2010, 249) explains that items are considered to represent an acceptable level of internal consistency if the value of Cronbach's alpha is within 0.5 to 0.7. Tavakol and Dennick (2011, 53) also regard Cronbach's alpha values of 0.6 and 0.7 as acceptable.

An ethical clearance certificate (HSHDC/418/2015) was issued by the Research Ethics Committee of the University of South Africa, and the permission to conduct the study was given by the Namibian Ministry of Health and Social Services and the management of the hospital where the study was conducted. The participants gave consent after they had been informed about the purpose, the nature, the process and the activities of the study. Confidentiality and anonymity were assured through avoiding association with their identities. The ethical principles of beneficence and justice, as well as considerations of scientific integrity were observed. No remuneration was paid.

Discussion of Research Results

Demographic Data

The respondents' demographic characteristics included age, gender, category, years of experience as qualified nurses and the wards or units where the nurses were working.

Of the 170 nurses who participated in the survey, 87 (51%) were registered nurses, 82 (48.2%) were enrolled nurses, and one was an auxiliary nurse. This finding was reflective of the distribution of qualified nurses employed at the hospital, where the registered nurses are in the majority. A total number of 510 nurses were employed at the hospital during data collection, 261 of which represented registered nurses, 246 enrolled nurses, and 3 auxiliary nurses (Namibia MOHSS 2015).

The majority of the respondents, 145 (85.3%), were female and 25 (14.7%) were male nurses. The ages of the respondents ranged from 22 to 68 years with a mean of 38.71. A large number of nurses were in the 22 to 30 (41%) and 55 to 60 (32%) age ranges. With regard to work experience, the majority of the respondents had work experience of less than 10 years, which was consistent with the age of the majority of the respondents. The majority of the participants worked in medical wards, followed by surgical wards and paediatric wards. A small number of participants worked in the maternity ward, ICU and outpatient department.

Compliance with Hand Hygiene Standards (“My 5 Moments for Hand Hygiene”)

Table 1 shows the respondents’ responses to questionnaire items on “My 5 Moments for Hand Hygiene” (WHO 2009a).

Table 1: Respondents’ responses regarding compliance with “My 5 Moments for Hand Hygiene” (N = 170)

I perform hand hygiene . . .	Never	Seldom	Sometimes	Always
before helping a patient to move around	31 (18.2%)	25 14.7%)	58 (34.1%)	56 (32.9%)
immediately before performing any aseptic procedure	3 (1.8%)	2 (1.2%)	19 (11.2%)	145(85.9%)
immediately after exposure risk to body fluids	1 (0.6%)	3 (1.8%)	5 (2.9%)	161(94.7%)
after the removal of gloves	2 (1.2%)	10 (5.9%)	59 (34.7%)	99 (58.2%)
after touching a patient and his/ her immediate surroundings when leaving	9 (5.3%)	13 (7.6%)	62 (36.5%)	85 (50.0%)
after changing bed linen	6 (3.5%)	13 (7.6%)	49 (28.8%)	102 (60%)

The minimum standard of 80 per cent compliance with a target of 100 per cent compliance is acceptable. Hand hygiene compliance is considered poor if it is less than 60 per cent and excellent if greater than 90 per cent (Song et al. 2013, e101). The results of the study showed that, on the “My 5 Moments for Hand Hygiene” approach, compliance with 4 out of 5 moments was poor. Similar results were reported by Unekea et al. (2014, 24) and Li et al. (2015, 1–6) which showed the lowest compliance with Moment 1 among healthcare workers. A variety of studies on compliance with hand hygiene standards among nurses reported similar results of high but suboptimal compliance of between 58.7 per cent and 64.3 per cent (Caglar, Yıldız, and Savaser 2010; Cummings, Anderson, and Kaye 2010; Erasmus et al. 2010; Fuller et al. 2014;

Harne-Britner, Allen, and Fowler 2011; Higgins and Hannan 2013; Langston 2011; Lebovic, Siddiqui, and Muller 2013; Mathai, George, and Abraham 2011; Santos et al. 2013; Unekea et al. 2014, 24).

Compliance with Moment 3 (immediately after the risk of exposure to body fluid) was excellent. The result is consistent with the previous study by Chavali, Menon, and Shukla (2014) on hand hygiene compliance among healthcare workers, which revealed excellent compliance of 91 per cent and 93 per cent with Moments 4 and 3 respectively. In another study by Harne-Britner, Allen, and Fowler (2011), compliance rates proved to be better after patient care activities than before.

Factors that Contribute to the Respondents' Non-compliance with Hand Hygiene Standards

A large number of the respondents identified dryness of the skin caused by hand hygiene agents, the lack of paper towels and hygiene products that are out of stock as main factors that contribute to non-compliance with hand hygiene standards (see Table 2). The results are consistent with some of the findings of a study by the WHO (2009b, 72) on self-reported factors for poor adherence, the findings of which included skin irritations and dryness due to hand washing agents and the lack of paper towels as reasons for not performing hand hygiene according to the recommended guidelines. Chassin, Mayer, and Nether (2015, 8) conducted a study on improving hand hygiene by targeting specific causes of non-compliance and found that skin irritation from hand cleaning products and the lack of paper towels were associated with non-compliance with hand hygiene standards. The nurses and doctors identified an inadequate supply of water, soap and towels as some of the main factors associated with non-compliance with hand hygiene during the focus group discussion conducted by Unekea et al. (2014, 14) in Nigeria.

Table 2: Factors that contribute to respondents' non-compliance with hand hygiene standards (N = 170)

I do not perform hand hygiene according to the recommended guidelines because...	Agree	Disagree
there are no hand hygiene guidelines in the unit	37 (21.8%)	133 (78.2%)
I do not always have access to hand hygiene material recommended in the guidelines or protocols	56 (32.9%)	114 (67.1%)
hand hygiene products are out of stock	80 (47.1%)	89 (52.4%)
hand hygiene products are not in a convenient location	68 (40.0%)	102 (60.0%)
there is a shortage of sinks	30 (17.6%)	140 (82.4%)
the sinks are out of order	65 (38.2%)	105 (61.8%)
the sinks are inconveniently located	55 (32.4%)	115 (67.6%)
there is a lack of liquid soap	68 (40.0%)	102 (60.0%)
there is a lack of paper towels	93 (54.7%)	77 (45.3%)
there is no water	33 (19.4%)	136 (80.6%)
the sinks are dirty sinks	51 (30.0%)	119 (70.0%)
hand washing agents cause irritation to my skin	33 (19.4%)	136 (80.6%)
hand washing agents cause dryness of my skin	97 (57.1%)	73 (42.9%)
I forget to wash hands	54 (31.8%)	116 (68.2%)
when I am busy there is insufficient time for hand hygiene	74 (43.5%)	96 (56.5%)

Personal Factors for Inconsistent Compliance with Hand Hygiene Standards

In response to the first open-ended question in the questionnaire “What are the reasons, if any, in your case, for not performing hand hygiene consistently according to the guidelines?” the personal reasons were given, in order of priority as shown in Figure 1.

1. Hand washing agents cause dryness of skin 97 (57.1%)
2. Lack of paper towels 93 (54.7%)
3. Hand hygiene products out of stock (47.1%)
4. Insufficient time to wash hands when busy (43.5%)
5. Hand hygiene products not in convenient locations (40.0%)
6. Lack of liquid soap (40.0%)
7. Sinks being out of order (38.2%)

Figure 1: Personal reasons for inconsistent compliance with hand hygiene standards

The results are consistent with the findings of the studies by the WHO (2009b, 72) on self-reported factors for poor compliance with hand hygiene and Chassin, Mayer, and Nether (2015, 8) on perceived barriers to appropriate hand hygiene. According to the findings of both studies, the self-reported factors for poor compliance with hand hygiene included skin irritation and dryness from hand cleaning products, lack of soap and paper towels, no soap at the sinks, broken dispensers or sinks, no hand rub in dispensers, and insufficient time to wash hands when the ward is busy. The findings are also consistent with some of the reasons the respondents of this study gave for not performing hand hygiene according to the recommended guidelines in Table 2.

Institutional Factors that Contribute to Inconsistent Compliance with Hand Hygiene Standards

The institutional factors that affect the respondents' practice of appropriate hand hygiene are shown in Table 3.

Table 3: Institutional factors that affect the respondents' practice of appropriate hand hygiene (N = 170)

Institutional factors	Never	Seldom	Sometimes	Always
Lack of institutional priority for hand hygiene	48 (28.2%)	27 (15.9%)	43 (25.3%)	52 (30.6%)
Lack of active participation in hand hygiene promotion at individual, unit or institutional level	40 (23.5%)	30 (17.6%)	40 (23.5%)	60 (35.3%)
The importance of hand hygiene is emphasised by my unit supervisors	54 (31.8%)	24 (14.1%)	41 (24.1%)	50 (29.4%)
Lack of administrative sanctions against non-compliers or rewards for compliers	58 (34.3%)	21 (12.4%)	24 (14.2%)	67 (39.1%)
Hand hygiene is considered an important part of the nursing care in my unit	54 (31.8%)	13 (7.6%)	26 (15.3%)	77 (45.3%)
Workshops, seminars and continuing educational courses on hand hygiene are offered	49 (28.8%)	33 (19.4%)	46 (27.1%)	42 (24.7%)

Institutional factors	Never	Seldom	Sometimes	Always
Lack of institutional safety climate or culture of personal accountability of healthcare workers to perform hand hygiene	34 (20.0%)	35 (20.6%)	39 (22.9%)	62 (36.5%)
Availability of rewards or encouragement for hand hygiene	86 (50.3%)	18 (10.7%)	16 (9.5%)	50 (29.6%)
Availability of role models from colleagues or superiors	49 (28.6%)	29 (17.3%)	30 (17.9%)	62 (36.3%)

According to the results, the lack of institutional priority for hand hygiene, the lack of active participation in hand hygiene promotion at unit or institutional level and the lack of an institutional safety climate or culture of personal accountability of healthcare workers to perform hand hygiene were institutional conditions that contribute to non-compliance with hand hygiene among nurses. Sharma, Sandeep, and Jagdeep (2011, 218) reported similar findings of administrative apathy and the low institutional priority for hand hygiene support as some of the factors that contribute to low compliance with hand hygiene among healthcare workers. Dunn-Navarra et al. (2011, 33) and Gluyas and Morrison (2013) corroborate this view by stating that institutional factors such as the lack of organisational support are likely to influence hand hygiene practices of staff. According to the WHO (2009a, 75), the lack of active participation in hand hygiene promotion at individual, unit or institutional level is an additional perceived barrier to appropriate hand hygiene and an overall factor for poor adherence. The lack of an institutional safety culture of personal accountability of healthcare workers to perform hand hygiene was perceived as an additional barrier to appropriate hand hygiene (WHO 2009a, 75). Chassin, Mayer, and Nether (2015, 8) identified an inadequate safety culture that does not stress the importance of hand hygiene for all caregivers regardless of their role as a cause of hand hygiene non-compliance. Maxfield and Dull (2011, 30) maintain that every nurse should be held responsible for reminding co-workers to practice hand hygiene, thereby raising the sense of accountability between the working team.

In addition, the results show that hand hygiene is not considered an important part of nursing, supervisors in the units do not emphasise the importance of hand hygiene and there are no role models from colleagues or superiors. Numerous studies reported similar results that there is a lack of supervisors to emphasise the importance of hand hygiene and that contributes to poor adherence. This means that in order to accomplish hand hygiene compliance, there is a need for supervision in the wards or units to ensure that hand hygiene guidelines are followed correctly (Mazi et al. 2013, 15; White et al.

2015, 59). Scientific evidence that supports the importance of role models among colleagues and seniors for hand hygiene compliance is plethoric (Barrett and Randle 2008, 1857; Mani, Shubangi, and Saini 2010, 115).

Takahashi and Turale (2010) highlight the need for nurses who are specialised in healthcare hygiene and who can translate theory into practice and be leaders for the rest of the staff in the daily work with the patients. According to Lindh, Kihlgren, and Perseius (2013), and Bamford, Wong, and Laschinger (2013), the presence of skilled and dedicated nurses in hygiene practice who participate in the nursing care of patients affects the compliance with hand hygiene practice among the other staff in the ward in a positive way. Barrett and Randle (2008, 1857) further explain that role-model behaviour from colleagues or superiors strongly influences hand hygiene adherence in both positive and negative ways. In another study by Browall and Walfridson (2014, 9) on factors that influence hygiene practice, it was found that the lack of leadership affects compliance with hygiene routines negatively while good leadership shows dedication for hygiene matters and encourages the healthcare personnel to maintain the hygiene practice.

In a study conducted by Mazi et al. (2013, 15), a team approach with the guidance of a team leader was suggested as a modality for behavioural change in sustaining compliance with hand hygiene. Following a variety of interventions such as performance feedback by the team leaders or supervisors, the same authors reported that the presence of team leaders contributed to increased compliance with hand hygiene among the nursing staff in general. Lam, Lee, and Lau (as quoted in WHO 2009b) found that multimodal interventions such as performance feedback improve hand hygiene adherence. The lack of sanctions against non-compliers or rewards for compliers has a direct effect on hand hygiene practices (WHO 2009a, 75). Corrective training on hand hygiene, reprimand and punishment were some of the suggestions for administrative sanctions on how to get the staff to follow the routines (Browall and Walfridson 2014, 9). In a qualitative study on compliance with hand hygiene, Unekea et al. (2014, 14) found unreported consequences of non-compliance in the list of factors associated with non-compliance with hand hygiene identified by the doctors and nurses. Suchitra and Lashmi Devi (2007, 186) report that there were no suitable rewards offered for those who complied in the form of either incentives or verbal acceptance for the participants in their study, and consequently healthcare workers did not feel motivated to comply with hand hygiene.

The results show that there are no workshops, in-service education, seminars, or continuing education on hand hygiene. Various researchers reported similar results that workshops, in-services education, seminars and continuing educational courses on hand hygiene are fundamental in promoting hand hygiene and helping staff to comply with the institutional protocols of infection control. In addition, they empower and encourage good practice of hand hygiene (Chassin, Mayer, and Nether 2015, 8; Sharma, Sandeep, and Jagdeep 2011, 218; Takahashi and Turale 2010, 127–134; WHO 2009b). Chassin,

Mayer, and Nether (2015, 9) further explain that the workshops should focus on discipline-specific education that puts hand hygiene within the context of an employee's daily work and processes.

Suggestions for Promotion of Consistent Practice of Hand Hygiene according to Guidelines Standards

The participants' responses to the last open-ended question in the questionnaire "If we could do one thing to help you with consistent practice of hand hygiene according to guidelines, what would it be?" are presented in Figure 2.

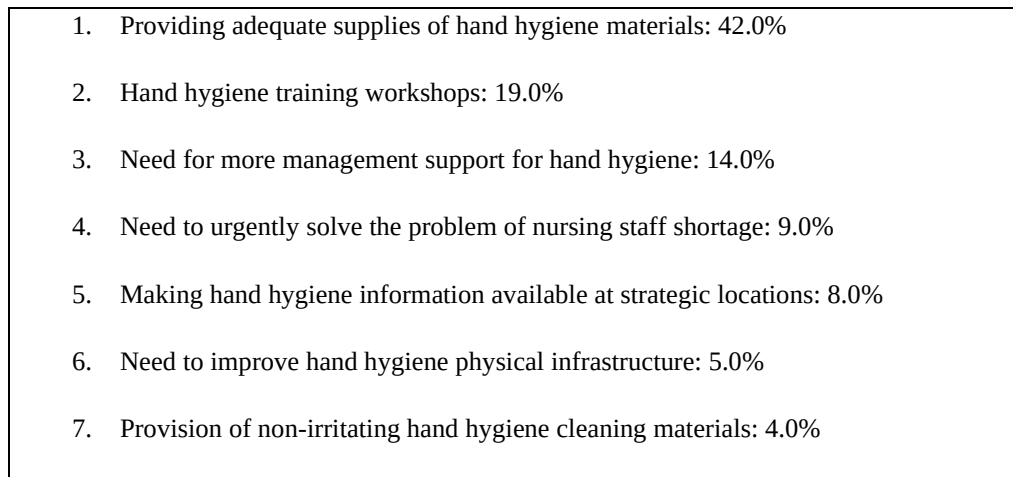


Figure 2: Respondents' suggestions for the promotion of consistent practice of hand hygiene according to guidelines standards

Chassin, Mayer, and Nether (2015, 9) reported similar suggestions for the promotion of consistent practice of hand hygiene in their study on improving hand hygiene by targeting specific causes of non-compliance. The suggestions made in the same study included the provision of easy access to hand hygiene equipment, the location of glove dispensers near hand-rub dispensers, sinks to facilitate the proper use of gloves, leadership commitment to hand hygiene as an organisational priority, and the provision of discipline-specific education that puts hand hygiene within the context of an employee's daily work and processes. A similar suggestion of hand hygiene workshops was made by the participants in the study by Chassin, Mayer, and Nether (2015, 9) that general education on hand hygiene expectations should be reinforced by means of workshops and just-in-time coaching. Just-in-time coaching provides real-time reinforcement and feedback to healthcare workers as well as progressive disciplinary action against repeat offenders and it is critical in creating a change in culture and behaviour. The suggestion of using strategies such as posters and visual cues to reinforce compliance was also made by the participants of the same study.

The respondents also made a suggestion of the need to urgently resolve the problem of the nursing staff shortage. The finding is consistent with previous studies conducted by Chavali, Menon, and Shukla (2014) and Erasmus et al. (2010) on compliance with hand hygiene among healthcare workers. According to the results of the same studies, hand hygiene compliance is low when there are staff shortages. Staff shortages, high workloads and understaffing do not provide adequate time for hand hygiene.

Recommendations

Recommendations included the planning and implementation of hand hygiene promotion programmes to provide in-service education that focuses on hand hygiene standards, correct procedures for hand hygiene and raising awareness about patient safety issues, including infection prevention. The introduction of a rewards and incentives system for consistent compliers and sanctions against non-compliers with hand hygiene was recommended. Other recommendations included enhancing supervision and monitoring of hand hygiene performance and supplying hand hygiene agents that do not cause skin dryness.

Limitations

The study was conducted in one public hospital in Windhoek, Namibia. The results are therefore specific and limited to the hospital and cannot be generalised to private hospitals in Windhoek and hospitals in other regions of Namibia. In addition, the study focused on nurses and the survey results cannot be generalised to other healthcare workers in Windhoek, Namibia.

Conclusions

There were more institutional than personal factors that contributed to non-compliance with hand hygiene standards among nurses in Namibia. The vital role that good leadership plays in the successful implementation of hand hygiene policy guidelines was highlighted. Good leadership is vital for the successful implementation of hand hygiene policy guidelines by ensuring that there are adequate resources and support for hand hygiene practice. The findings of this study added to the existing body of knowledge regarding infection prevention; in particular, the factors associated with non-compliance with hand hygiene standards among nurses.

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