Vietnamese nurses’ conceptions of preventive measures used to reduce the spread of infectious diseases causing diarrhea

An empirical study about Vietnamese nurses’ conceptions of preventive measures

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Introduction: Even though Vietnam has been leading in the region with addressing diarrhea and the complications, there are many issues yet to be addressed. Nurses get the opportunity to work closely with their patients. In preventive work such as diarrhea prevention, this is an invaluable asset. **Aim:** The aim of this study was to investigate Vietnamese nurses´ conception of preventive measures used to reduce the spread of infectious diseases causing diarrhea. **Method:** The study had a qualitative design. Data were collected through eight open ended interviews. The data were recorded, transcribed verbatim, and then analyzed through content analysis. **Result:** Three main categories were identified based on the collected data: Behavioral change, education and safe food. **Conclusion:** This study presents preventive measures used by Vietnamese nurses´, and highlights different obstacles that the nurses are facing in their work to reduce the spread of infectious disease causing diarrhea. The main obstacle seemed to be related to behavior change regarding lacking personal hygiene and inadequate cooking. The nurses´ pointed out low socio-economic status, as an especially aggravating circumstance that complicates the prevalence of changed behavior.
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INTRODUCTION

Nurses get the opportunity to work closely with their patients. In preventive work such as diarrhea prevention, this is an invaluable asset. Since nurses’ preventive actions includes behavioral, cultural and education, they have key role in this matter. At this moment there are approximately five billion cases of diarrhea each year, resulting in about 1.5 million deaths. Among children under the age of five, diarrhea is the second largest cause of death. Diarrhea is a major global problem, especially in developing countries (Unicef/WHO 2009). Unicef/WHO defines diarrhea as:

“Having loose or watery stools at least three times per day, or more frequently than normal for an individual” (Unicef/WHO 2009).

Nurses interventions against diarrhea in Vietnam

Behavioral pattern, hygiene education and demonstration

Even though Vietnam has been leading in the region with addressing diarrhea and its complications, there are many issues yet to be addressed, such as further education for the inhabitants. Education and knowledge is one of the fundamental bricks to decreasing the infection rate. The National Pediatric Hospital in Hanoi has implemented a training and education workshop for health care workers, to prevent diarrhea, which lead to development of The Ministry of Health (MOH) in Vietnam, to update the national prevention and treatment strategies. These health care workers later disseminated the new guidelines among the provinces, who then continued on to community level. Here is where nurses have a key role in preventing diarrhea, and have an opportunity to implement such health promoting interventions (PATH 2011). The nurses’ interventions in preventive work involve increasing the compliance of hand washing promotion, as well as hygiene education and demonstration. In a Cochrane’s review (Ejemot-Nwadiaro et al. 2015) on hand washing promotion for preventing diarrhea, statistics were presented that hand washing promotion can reduce the prevalence of diarrhea with 30 %. The spread of pathogens can especially be prevented through hand washing with soap. This has showed a significant reduction of diarrhea in hospital settings with high-risk population, reducing the prevalence of diarrhea in the communities with one quarter and one third amongst school and daycare facilities through hand washing. The review shows great importance with hand washing especially in conjunction with eating (before/after), using the toilet or cleaning the baby's bottom (Ejemot-Nwadiaro et al. 2015).
Nurses can affect the complex work of changing behavioral patterns and cultural conditions related to health promoting actions. Rollnick et al. (2008) press the importance of the persons’ own desire to change as an important factor in behavior change. One example of successful behavioral changed pattern, is to exclusively breastfeed children under six months old (Unicef/WHO 2009), such behavioral change takes time. In some cases the circumstances around the inhabitant, such as access to clean water, may prevent and complicate the successfulness of implementing healthy actions (Ejemot-Nwadiaro et al. 2015).

**Holistic care**

Exner (et al. 2001) press the issue of holistic principles related to hygiene. Health promotion actions, training, and educations efforts enable and motivate individuals to implement measures to protect and motivate health. Health promotion actions must begin in early age and continue through life. Parents, school and nurses can communicate health promotion. Including home hygiene, food hygiene, washing, cleaning and disinfection in certain areas and circumstances (Exner et al. 2001)

Adopting a holistic approach enable the opportunity to rationally approach individuals home hygiene, based on risk assessment. A risk-based approach begins with the starting point that the pathogens are introduced to homes through people, food, water and pets. Which increases with inadequate disposal of human and animal excreta. By assessing these factors, the risk of potential transfer of pathogens into the homes can be detected (Bloomfield & Scott 2003). Holistic care increases the depth of understanding the patients’ need of education, in order to help them independently implement healthy actions (Zamanzadeh et al. 2015).

**Pathogens causing diarrhea**

Diarrhea is an infectious disease that is mainly caused by enteric pathogens. Enteric pathogens include viruses, bacteria and parasites. Considered to be the most common recognized enteric pathogen organism is the Rotavirus and diarrheagenic Escherichia coli (DEC). The group A Rotavirus is alone responsible for approximately 20% of diarrhea-associated deaths in children under five years of age. Apart from DEC and group A Rotavirus, there is an expanding list of several potential enteric pathogens, for example: Salmonella spp and Vibrio cholerae (Nguyen et al. 2005).
**Infrastructure, water and food**

Diarrheal disease is primarily caused by fecal-oral ingestion of pathogens. The fecal-oral ingestion route occurs mainly through contaminated water, contaminated food and through person-to-person contact (WHO 2014). Inadequate sanitation and infrastructural systems, leads to faecal pathogens entering the water sources, as well as risking agricultural fields to be contaminated by fly populations, leading to infection amongst humans. A deficient infrastructure and sanitation facilities increases the risk of humans and animals unintentionally bringing enteric pathogens into the homes, and contaminating the home environment (WHO 2015).

Clean water can be contaminated by pathogens during collection, transportation, storage and handling of water in the households. Safe water transportation and storage could reduce the water from being contaminated by E. Coli with 70 %, and diarrheal infections with 25 % (Gunter & Schipper 2013). Contaminated food is also a potential source causing infection. Food can easily be contaminated through inadequate hand hygiene, utensils and water. It causes bacterial growth in the food, increasing with food stored in unfavorable temperature, reheated, as well as insufficient heating (Marino 2007).

![Figure 1. Modified model. Prüss et al. (2002)](image-url)
Law and national plans in Vietnam

The National Assembly in Vietnam ratified the Law on Prevention and Control of Infectious Diseases in 2007. This law allocates on information about prevention and control methods of infectious diseases such as diarrhea caused by the Rotavirus. According to the law, all residents are entitled to get information about causes, consequences and education about infectious diseases. Health care units including nurses’, mass media and the state should provide this information. The education will be targeted to risk groups and provide information about risk factors. Through this law, individuals and organizations are required to participate in preventing and controlling the spread of infectious diseases (The National Assembly 2007).

According to Control of the National plan of action for child survival, Vietnam's priority the following years is behavioral change, information about safe disposal by feces, hand washing and access to clean water and proper sanitation (Ministry of health 2009).

Problem definition

Diarrheal diseases hit the poorest countries hard, especially families with low socio-economic status. Such families may have limited access to clean water, sanitation facilities, and safe food. This result in a three to four times higher infection rate amongst this group. This study was conducted in three levels, in order to get a broad perspective on the issue from different geographical areas. As well as the preventive measures used by the nurses’, such as information, education, communication and hygiene demonstration. The nurses’ have an opportunity to affect the infection rate, and therefore it is in our interest to investigate Vietnamese nurses’ conceptions of preventive measures used today.
AIM

The aim was to describe Vietnamese nurses’ conceptions of preventive measures used to reduce the spread of infectious diseases causing diarrhea
METHOD

Study design

The study had a qualitative design. The data was collected through open-ended interview questions, at three different community centers, one district hospital in the Nam Dong district and from the University Hospital in Hué.

Figure 2. Different study settings.

Sampling

In this study a purposive sampling was used. Nurses’ with varying work experience and both sexes were included. Nurses’ who treated patients suffering from diarrhea was sought; therefor nurses’ who worked at either the pediatric or internal medicine department was of interest. At the health centers the general nurses’ were responsible for this patient group and was therefore chosen. Eight interviews were performed with nurses who volunteered to participate; one of the interviews was excluded from the study, because there were no conditions to preform the interview in a separate room and the participant was clearly affected by colleagues circulating and overhearing the interview.
Table 3. Demographic information

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Eight female</td>
<td>One male</td>
</tr>
<tr>
<td>Age</td>
<td>25 - 45 years</td>
<td>45 years</td>
</tr>
<tr>
<td></td>
<td>Median age = 32</td>
<td></td>
</tr>
<tr>
<td>Years of experience</td>
<td>3 - 21 years</td>
<td>21 years</td>
</tr>
<tr>
<td></td>
<td>Median experience: 8 years</td>
<td></td>
</tr>
<tr>
<td>Position in the department</td>
<td>4 Head nurse</td>
<td>1 General nurse</td>
</tr>
<tr>
<td></td>
<td>4 General nurse</td>
<td></td>
</tr>
</tbody>
</table>

Data collection

The study was conducted between February and March 2016. Before conducting the interviews, observations were conducted at the community health centers, the district hospital and the University Hospital. These observations were collected and written down through field notes in accordance with Polit & Beck (2012). By having the opportunity to carry out observations, gave a better insight on how the nurses’ worked and gave a better understanding of which questions could be of interest during the interviews.

The participants received a consent form (appendix II), where they received information about the study and that the interviews would be recorded, as well as a copy of the interview guide translated to their native language Vietnamese (Appendix IV), in line with Polit & Beck (2012). Initially two pilot interviews was carried out to prepare for the larger study, and to provide the opportunity to adjust flaws in the interview guide. After conducting the pilot interviews, one question was adjusted in order to simplify the language and make it more understandable for the interpreter. The pilot interviews also gave the opportunity to practicing interview techniques. Eight open-ended interviews were carried out. Since none of the participants spoke English, an interpreter was used. The interpreter translated both interview questions and the participants’ answers. The interviews took place in their staffroom, with no others than the people needed in order to conduct the interview. One of the interviews was located in a common area, which later got excluded from the study.
During the interviews one lead the interview and the other one took notes. The interviews lasted approximately 30 minutes. The interviews were recorded and transcribed verbatim the same day as the interviews were conducted, in order to minimize the risk of the results being influenced by personal views, this procedure was recommended by Polit & Beck (2012). The participants’ demographic information was collected by a form (appendix III) with questions about the participants’ sex, age and work experience. The participants were asked if a second interview with further questions could be conducted if needed.

**Data analysis**

To analyze the collected data, a content analysis was made. To find meaning units the data were transcribed verbatim and read carefully. The meaning units were condensed, abstracted and coded with a label in accordance with Graneheim & Lundman (2003). To convert the codes to categories, a high-quality category schedule was developed, to identify underlying concepts, clusters and sub-categories. To strengthen the reliability in this coding process, at least two people should be involved, which was the case in this study, in line with Polit & beck (2012). The meaning units were carefully compared and discussed to ensure a correct interpretation. The units were labeled with a code and those codes created different categories in accordance with Graneheim & Lundman (2003).

**Table 1. Example: content analysis**

<table>
<thead>
<tr>
<th>Meaning units</th>
<th>Condensation</th>
<th>Code</th>
<th>Sub category</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>“It's very good to demonstrate for them. Like demonstrate how to wash your hands, and then we let them do it themselves”</td>
<td>“Like demonstrate how to wash your hands”</td>
<td>Education by demonstration</td>
<td>-Education by demonstration as a teaching method</td>
<td>Education</td>
</tr>
</tbody>
</table>
Ethical considerations and limitations

The project plan was sent and approved by the ethical committee in Vietnam (Appendix V). All nurses that fulfilled the inclusion criteria received oral and written information about the study. The information was given to the participants in both English and their native language Vietnamese. The information was given in their native language, in accordance with SFS (2003:460). SFS (2003:460) describes how such consent must be explicit and specific-to-specific research, as well as that the consent must be documented, and completely voluntary. The consent form given to the participants (Appendix II), contained information that they could decline participation in the study at any time during the process, without consequences. This information was also given verbally.

In order to enter the Nam Dong district, an approval was needed from the commune. When applying for entering the Nam Dong district area, a detailed plan of the stay was presented for the director of the District Hospital. This was all done before conducting the interviews. Furthermore information was given to the participants that all collected data would be stored safely. As well as that the data would be handled confidentially and quotations from the nurses’ would be impossible to link to any specific individual in accordance with the Ethical guidelines (2003).

Study context

Nam Dong district is a community with approximately 25,094 residents, living under simple conditions. The average wage is 186,000 Dong a year, which translates to approximately 7038 SEK. In the Nam Dong district area only 30% have access to clean and safe water, which is far below the average 97% in Vietnam (The World Bank 2015). This is a consequence of the poor infrastructure provided in the area, which results in that some inhabitants collect their water from the rivers, as well as defecation occurs in the river and the environment. Around 15% of all children suffer from malnutrition (Vietnam Government 2012). The University Hospital in Huế is a med-sized hospital with several clinical specialties that have approximately 450 beds, and is a training center for students at the Huế University of medicine and pharmacy. Approximately 340 000 inhabitants live in the city. The living standards for the inhabitant of Huế varies greatly depending on socio-economic status (Huế University of Medicine and Pharmacy 2006).
RESULT

The analysis of the data resulted in three categories (Table 2); Behavioral change, education, and safe food. The categories and subcategories are presented in table 2.

Table 2. Categories and subcategories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub-categories</th>
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<tbody>
<tr>
<td>Behavioral change</td>
<td>Nurses’ conceptions of external causes that prevent change</td>
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<tr>
<td></td>
<td>Nurses’ conceptions of inhabitants resistance to change risky behavior</td>
</tr>
<tr>
<td></td>
<td>Nurses’ conceptions of cultural differences affecting successful preventing work</td>
</tr>
<tr>
<td>Education</td>
<td>Nurses’ conception of education by demonstration as a teaching method</td>
</tr>
<tr>
<td></td>
<td>Education based on nurses’ observation</td>
</tr>
<tr>
<td></td>
<td>Nurses’ education through speakers and hamlet meetings</td>
</tr>
<tr>
<td>Safe food</td>
<td>Nurses’ conception on inadequate cooking</td>
</tr>
<tr>
<td></td>
<td>Nurses’ conception of lacking food hygiene amongst the inhabitants</td>
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</tbody>
</table>

Categories

Behavioral change

It emerged from the interviews that work related to behavior change is very complex. The nurses’ responses regarding behavioral change centered around three areas: Nurses’ conceptions of external causes that prevent change, nurses’ conceptions of inhabitants resistance to change risky behavior and nurses’ conceptions of cultural differences affecting successful preventing work.

Nurses’ conception of external causes that prevent change

The nurses’ identified poverty as an obstacle, related to the inhabitants’ opportunity to change their behavior. It appeared that knowledge about preventive measures existed to some extent, but the socioeconomic status prevented many people to reinforce the knowledge obtained by the nurses. When the choice stood between food and hygiene articles, the basic need for food had to be prioritized. To choose safe food was not always an option within their financial resources.
“Factors around them makes it very hard to change their behavior. Many don’t have any money to get sanitation facilities, like don’t have enough money to buy soap. So it also related to money, because some don’t have enough money to buy safe food” (Nurse 8, Nam Dong)

All nurses’ in Nam Dong district pressed the issue of poverty as a reason for the lack of environmental hygiene, in and around the homes, for example lacking financial resources to build standard toilettes. The nurses’ explained that insufficient sanitation facilities were especially common amongst the minority people in Nam Dong district, due to open defecating in the stream running through the village and in the nature around the residential area. The stream became contaminated and resulting in a great risk to contract diarrhea, for those using water from the stream for cooking, cleaning and bathing. One nurse expressed concern related to the unsafe toilets located nearby the houses, increasing risk for contracting infection, for example through flies and animals contaminating the home environment with feces. This specific nurse had been a part of a project run by the prevention group, which worked with implementing safe toilets as a preventive measure in Nam Dong district. Their project resulted in 30 families given two million Dong in order to build standard toilets.

“Some people want to get the stool out in the outside, not in the toilette and also some have it at the stream and the people have wash and bath here. They go and pee on the stream and so people use the water from the stream for washing and cooking and that cause the diarrhea” (Nurse 9, Nam Dong)

Nurses’ conceptions of inhabitants’ resistance to change risky behavior

The nurses’ raised the issue of unwillingness of behavior change amongst the inhabitants. Behaviors where the greatest resistance existed seemed to be culturally conditioned, such as widely popular traditional food, but also a common route of infection. One nurse explained that despite knowledge about the risk of infection there was little interest in changing.

“We can’t change, it's so delicious! But if we cook it at home, it’s more hygiene than in the street” (Nurse 3, Hué)
The nurses’ identified established patterns of behavior from the families. They expressed concern about families leaving their children unsupervised, because of the high risk of contracting a diarrheal disease by fecal-oral ingestion, when the children put dirty items in their mouths. The nurses’ stated that they recommended the parents to pay attention to this, in order to prevent their children from contracting diarrhea.

“If we want to decrease the prevalence of diarrhea in children, we must change the behavior and the habits from the family”
(nurse 4, Huế)

The nurses explained that the access to clean water is a complex question, especially amongst the minority people in Nam Dong district, due to inadequate water systems, to cultural and habitual circumstances. The nurses’ stated that despite access to clean water, many choose the traditional way of providing it for their families, which means from the well or stream. All nurses’ in the Nam Dong district pressed this to be a difficult behavior to change, the nurses’ tried to change this behavior through information about the advantages by choosing safe water, when possible. According to the nurses’, the minority people had little or none compliance with the nurse's education regarding the issue.

“In general the minority people live far from the central. And their water systems cannot reach them, so they don’t have safe water to use. And the second reason is that they actually prefer the water from the well and stream. Because they’ve used it before and therefore they want to use it now as well. Out of a habit. They’re acquaintance with it” (Nurse 8, Nam Dong)

Nurses’ conceptions of cultural differences affecting successful preventing work

The nurses’ highlighted cultural differences between the people living in Huế and in Nam Dong district, and a difference between the Kin people and the Cotu minority people in Nam Dong district. The difference between Kin and Cotu minority people were founded in historical, traditional reasons, as well as an difference in education level. Many participants said that the Cotu minority were simple-minded labourers and unaccustomed to receive modern knowledge. Regarding the difference between Kin people in Huế and Nam Dong, the participants expressed that access and acceptance of information was greater amongst the people in Huế, related to education level and access to internet.
“The minority people is that it's different between the language and
because in the past they haven't gone to school and their knowledge and
perception isn’t as good as the kin people. Limited ability to absorb the
information and when they hear it they forgot very quickly” (Nurse 5,
Nam Dong)

Education

The education given to the inhabitants varied depending on the context in which they lived. It appears that related to the nurses’ workload, the amount of time given for education varied and nurses’ at the Huế University Hospital therefor preformed education while conducting other tasks. In the Nam Dong district there were more educational sessions than in Huế. The participants responses centered on education by nurses’ conception of education by demonstration as a teaching method, education based on nurses’ observation and education through speakers and hamlet meetings - via nurses.

Nurses’ conception of education by demonstration as a teaching method

The nurses’ had acknowledged that the information given during education sessions could be hard to grasp for the inhabitants. To get around this the nurses used demonstration as a teaching method to simplify the learning process. For example after demonstrating proper hand washing methods, they would encourage the learner to do it. In addition to this, nurse (8) expressed the importance of showing pictures as a complementing part of the education and also expressed the need of more material, in order to fully implement this. One nurses’ proposed that teachers should get education about preventive measures from the nurses’. So the teachers could pass on the knowledge to the children, such as knowledge about hand washing. In order to successfully implement healthy behavior early in their lives, as well as educates their family members.

“It’s very good to demonstrate for them. Like demonstrate how to
wash your hands, and then we let them do it themselves. And
check if they can do it or not” (Nurse 7, Huế)

“After you've given the knowledge you ask them some questions
to make sure that they understand in their minds. Sometimes it's
good to give them some pictures to not only just hear the
information, but also see the information” (Nurse 8, Nam Dong)
Education based on nurses´ observation

Some nurses´ used observations to identify patients´ lack of knowledge. At the University hospital in Hué the nurse´s talked about observations at the department, while in Nam Dong District some nurses had the opportunity to do home visits. At home visits they observed what type of food they choose, their way of cooking it, and how they took care of their babies, for example hygiene around the nipple. These observations showed that the majority of people had inadequate hygiene related to these actions. After conducting these observations and if risky behavior emerged, the nurses adapted the education after what emerged from the observations.

"I´ll do home visit and ask about how they cook the food. How they choose the food and about the water. And about how they take care of their babies. After that consult and educate for them. And get the information about how they keep the hygiene" (Nurse 4, Nam Dong)

Nurses´ education through speakers and hamlet meetings

The nurses´ in Nam Dong District pressed the importance of increased knowledge amongst the inhabitants, through education about preventive measures. In addition to educating at the district hospital, they used speakers located at important places around the community. The nurses at the local community health centers passed on the information given through these speakers. In order to fully reach out with information to the community, the nurses also made sure that education about preventive measures were given at meetings for inhabitants, regularly held in a local building. In coherence with that they pressed importance of repeating the education several times, which the participants said was particularly important for the minority people, since the cases of diarrheal diseases was higher amongst them and the knowledge generally much lower than the kin people.

"As a nurse she can give education to the patients and knowledge through the speakers, they can give education. The medical staff can write down information for the manager and then they can speak and also at hamlet meetings where they will have information" (Nurse 6, Nam Dong)
Safe food

All participants acknowledged that food was a major cause of diarrhea amongst adults and children, thought affecting the children somewhat harder. The participants’ answers centered on inadequate cooking and lack of food hygiene.

Nurses’ conception on inadequate cooking

The nurses’ acknowledged inadequate reheating, improper storage of the food, and preparing the meals for the whole day were actions as problematic. The nurses explained that food often was prepared for the whole day, especially food that was meant for the children. Often exposed the children to a higher risk for diarrheal infection. One nurse expressed that education was given to cook for each meal, but the compliance with this was very low, because of the practical benefits of preparing the food in the mornings.

“They cook it in the morning and then they eat the same food the rest of the day” (Nurse 4, Nam Dong)

Nurses’ conception of lacking food hygiene amongst the inhabitants

All nurses’ talked about the lacking food hygiene as a cause of diarrheal diseases. The nurses’ said stated that unboiled water, dirty hands and flies often contaminated the food. Despite that the inhabitant possessed knowledge about these possible modes of transmission, they made little effort to change. The nurses’ explained that it to be related to the fact that the unsafe food in many cases is cheaper. The nurses highlighted that the inhabitants had the knowledge about the lacking hygiene of street food, which often boiled true out the day risking bacterial growth. Located by the trafficked roads, with animals, people and vehicles passing, resulting in a possible risk for contamination of the food. Some nurses’ stated that they encouraged the inhabitants to eat at home in greater extent, where they could verify that the food was cooked properly.

“Most of the reason is that they ate food outside in the street. And it is like dirty food” (Nurse 3, Huê)
Observations

In addition to the eight conducted open-ended interviews, observations with limited participation were made in accordance with Polit and Beck (2012). These observations were conducted at all three health care settings, to broaden the understanding of the nurses’ actions and behavior in naturalistic settings. Field notes was used to preserve the acquired information. In many cases the observations strengthened the information given by the nurses’. In some cases contradictory information was found, related to what data emerged from the interviews. After analyzing the observations the following categories was revealed.

Home visit in the Nam Dong district

During a home visit in Nam Dong district, the family that opened up their home to enable observations represented a standard home in this area. The home lacked standard toilet, sanitation facilities and electricity. The toilet was a hole in the ground, located 10 meters from the house. There were no opportunities for the family members to keep adequate hygiene related to toilet visits or between toilet visits and cooking. The families’ pets walked freely in the muddy soil around the house and entered as they pleased. The home environment was observed getting visibly contaminated by for example chickens walking on the dining table.

Isolation of infection patient

Many of the nurses’ expressed the importance of patients with diarrheal infection to get a separate room and toilet. In reality this was not reinforced at either the district hospital in Nam Dong or in the University Hospital in Hué. The nurses’ expressed that isolation of an infection patient was crucial, but reinforcement of this seemed impossible in practice. At the internal medicine department in Hué University Hospital at the time that the observations were conducted, there were approximately 100 patients and six nurses at the department. For each patient there were at least one relative to care for them. The patients’ relatives circulated frequently at the department and many patients also shared beds, which may increase the risk of spreading the infection further.
Inadequate hygiene amongst the nurses´ and patients´ at the departments

Inadequate hygiene amongst the nurses was observed at all departments. The usage of gloves and disinfection liquid in patient care was very low, which may risk the nurses´ to spread infection to other patients. One nurse was observed using disinfection liquid related to patient care. Beyond this the nurses´ performed no basic hygiene before meeting their next patient.

Obstacles that the nurses´ experienced in all departments were the lack of individual equipment during hospitalization. There were five to ten patients who shared every room. They lacked access to a personal and clean madrassas. Most patients avoided showering during admission, due to lack of hygienic showers available in the departments, resulting in lacking hygiene during hospitalization.
DISCUSSION

Result discussion

The aim of this study was to investigate nurses’ conceptions of preventive measures used to reduce the spread of infectious diseases causing diarrhea, in three different healthcare settings in Vietnam. The collected data created three categories: Behavior change, education and safe food.

The use of a holistic perspective when working as a nurse in diarrhea prevention can be a very successful approach, to successfully implement these healthy actions. A holistic perspective includes a wide range of approaches, such as education, communication and personal traits. When acknowledging the patient's role in the preventive work, it does not only lead to a sense of autonomy, but can also work as an encouraging factor for the patient. There is much to gain for the nurse by using holistic care, the holistic care can for example increase the depth of the care providers' understanding of their patients and their needs (Zamazadeh et al. 2015).

The combined result from the interviews implies that extensive and complex work is needed related to behavior change. Rollnick et al. (2008) press that behavior change is a critical part of effective health care, and explains how the nurse’s only can do so much. The final decision to implement healthy actions and commit to the given advice lies upon the patient (Rollnick et al. 2008).

At the Huế university Hospital and in the Nam Dong district multiple factors were connected and complicating the possibility for behavior change, with the patients’ own desire to change as one them. In the Nam Dong district the component of cultural differences was one additional complicating factor. The nurses at all three health settings expressed special concern for the minority people living in the countryside. This group lives under poor conditions regarding environmental hygiene, sanitation facilities, access to safe water and cooking, exposing them for even more risk factors than the people living in the city. In addition to this, the component of socioeconomic status and access to knowledge, as well as receptivity of knowledge was according to all nurses lower amongst the minority people. Because the minority people often worked in the fields and carried with them many culturally conditioned behaviors, related to collecting water, environmental hygiene around their houses and cooking. Several of the nurses’ expressed concern regarding the minority people’s lower educational level. They explained this an aggravating factor resulting in a lower receptivity of the education given by the nurses’.
An additional complicating factor that the nurses in Nam Dong district expressed was the language differences between them and the minority people, since the minority people spoke a different language. Schyve (2007) presented that language is a core component in successful nursing, and when language barriers exist; information could get lost, received incorrectly and affect the patient safety. Douglas et al. (2011) presented that when nurses’ aim to be competent and successful cross-cultural work. The nurses must be interested in learning and sharpening cultural assessment and communication skills. The nurses are more likely to achieve cultural competence when cultural knowledge, awareness and attitudes are used dynamically to understand cultural differences, such as language differences, in order to implement new healthy action and beliefs (Douglas et al. 2011). The nurses’ did not express any solutions to get around the language differences. The nurses’ simply stated that this was an area of concern and a complicating factor to successful education, with no concrete solution.

No difference in quality of patient education emerged related to age or time at the department amongst the nurses, though it seemed to be demographic difference regarding patient education. The nurses who worked in the Nam Dong district generally gave richer and more detailed descriptions about essential behavior patterns that needed to change, and expressed more varied and developed methods for education. The nurses in Nam Dong performed customized education about preventive measures through home visits and education at meetings for the community. Ryan (2009) presented one key measure to successful behavior change, which is encouraging knowledge. Galanti (2000) described a further layer when working with education as a prevention method, which was emphasizing the importance of acknowledging different cultural customs to avoid misunderstandings and enable the health care givers to provide better care. Perhaps these measures were excessive in Huế, with the less varying cultural differences amongst the inhabitants, than in Nam Dong district. Although it was revealed from the interviews in the University Hospital in Huế, that the nurses performed patient education while performing other tasks, which according to one of the interviewed nurses, was related to limited staff on the department.

There is considerable evidence showing that patients leave the hospitals with poor understanding for their recommended treatment and their disease according to Kemp et al. (2008). To reduce this lack of understanding Kemp et al. (2008) recommended that patients should explain and restate what has been told. They presented that it appeared that patients preferred to restate their understanding of the medical information given. Kemp et al. (2008) recommends the health care staff to acknowledge patients difficulties in understanding medical information given. In order to reduce potential shame related to limit understanding. The
limited staff in the department and the nurses strained work environment provides is therefore a possible risk for patients leaving the hospital without enough knowledge about preventive measures.

A big part of the nurses’ education was related to perform the right food and hand hygiene. This was a common denominator for both the Kin people and the minority people living near all three health care settings. Ejemot-Nwadiaro et al. (2015) presented that solely hand washing could decrease the infection rate with 30%. Also Curtis & Cairncross (2003) who presented that in developing countries the infection rate reduced with around 45 % by hand washing. Even though the nurses thought the patient about the importance of hand washing, the nurses expressed that the integrated behavior of not performing hand washing was deeply rooted and the compliance of their education was low, despite adequate knowledge.

The nurses’ expressed concern about that many families prepared and cooked their food in the morning, with heating and reheating multiple times during the day. Despite the nurses’ education about the potential risk with this, the compliance was low. The nurses’ explained that the low compliance was connected to the convenience of preparing the food in the morning. This unwillingness to changed behavior because of practical gains is an typical example of what Rollnick et al. (2008) explains. The nurses’ can simply motivate and educate about the importance of implementing these changes, in order to minimize the risk of infection, but finally the commitment to change lies upon the patient (Rollnick et al. 2008).

**Method discussion**

Since the aim was to describe Vietnamese nurses’ conceptions of preventive measures to reduce the spread of infection diseases causing diarrhea, a qualitative method was used and limited participation observations were conducted (Polit & Beck 2012). Open-ended interviews were performed, these open-ended interviews gave the possibility to ask broad questions about the topic and gave the participants the opportunity to talk freely about their experiences as Polit & Beck (2012) describes. A greater number of informants could have increased the trustworthiness, but according to Polit and Beck (2012) sampling should end when data saturation occurs, and data saturation occurred during the last interview. This could imply that there were no more data to be collected, but it could also have occurred related to an insufficient interview guide. Because the interviews were conducted at three different health care settings and different geographical locations, it is likely that it actually was data saturation and not an insufficient interview guide.
To further achieve trustworthiness in a qualitative study it should have credibility, transferability and dependability (Graneheim & Lundman 2003). To increase the credibility in this study the categories and subcategories were intentionally presented and how they were made. The usage of content analysis is an advantage in order to eliminate as much personal values as possible. A purposive sampling was conducted, which included participants with different work experience, age and sex. When choosing participants with different work experiences, this increases the possibility to get a variety of aspect of the subject according to Graneheim & Lundman (2003). Therefore collecting data from three different healthcare levels increased the credibility of the presented result.

The three level study also broadened the view of the problem areas that the nurses experience related to diarrhea diseases. According to Polit & Beck (2012) a thorough presentation of the study context increases the transferability. A strength in this study were that all collected data were discussed by the two researchers and transcribed as soon as possible after the conducted interview, which was recommended by Polit & Beck (2012).

In Polit & Beck (2012) the importance of mingling and converse with as many members of the culture in which the study is being conducted as possible. They bring up the importance of having key informants, which in this study were the interpreters. These key informants were educated Vietnamese nurses’ who possessed great knowledge about the culture and organization, and enable a link to the culture. The interpreters created a greater understanding and translated the cultural codes preventing misunderstanding and misinterpretations (Polit & Beck 2012). Because a greater understanding of the culture was pursued, travels around the country were made before conducting the interviews. The areas around the University Hospital in Huế were also explored, in order to get a greater understanding of the nurses’ cultural background and environment in which they lived. As stated above there are many positive aspects of the fact that the interpreters were familiar with the nurses’, but it can also be considered a risk. Since the interviewed nurses’ might experience this as a risk of their confidentiality.

Kosny et al. (2014) describes that using a translator, can result in that the researchers may experience that the length of the participants’ answers is shortened and summarized by the translator. There is no way of guaranteeing that the interpreters translated the responses correctly. In some extent it appeared as the answers were shortened, as Kosny et al. (2014) stated as a risk in interviews. The interpreters used in this study summarized the interviewees’ answers, but despite this, hopefully the main content of was translated.
Sometimes it appeared as if the answers were changed in order to satisfy the aim of the study. The interviewed nurses’ may have been affected by the translators’ professional status, which may have increased the desire to satisfy, instead of saying what is done.

In the University Hospital in Huế, the interviews were mainly conducted in a dressing room and in the nurse's’ offices in the Nam Dong district area. Polit & Beck (2012) emphasize that interviews should be performed in an environment without interruptions, to ensure no distractions for the participant, researcher or the recorded data. One interview was performed in the nurse’s common working area where several of the staff circulated, meanwhile the nurse documenting in a medical file. This interview was excluded from the study. Interviews with lots of distractions can easily result in short dialogue, lack of depth and an information loss according to Kosny et al. (2014), which was experienced in this specific interview. If this interview would have been conducted in a private room, it may have resulted in more dialogues between the interviewers and the nurse.

Initially hygiene was one of the main categories in the result, but later got excluded from the study. The reason to this decision was that hygiene is included in all other categories, and simply appeared to lead to repetitive information.
Clinical significance

Because nurses’ work closely with their patients, they play a key role in order to tackle this issue and spread knowledge amongst their patients. The result of this study highlights the importance of behavior change through education, in order to decrease the prevalence of infectious diseases causing diarrhea. Behavior change through education is an area where nurses have the opportunity to directly influence their patients. Therefore it is of interest to investigate the nurses’ conceptions of preventive measures of infectious diseases causing diarrhea.

Suggestions for further research

It could be of interest to do further research about minority people and how culturally conditioned behaviors affect desire for behavior change. As well as investigate further about how nurses can work with successful behavior change related to day-to-day choices involving food hygiene, habitual behavior related to environmental and hand hygiene. It would be of interest to conduct this study in a developing country, in areas where socioeconomic status is low.
CONCLUSION

This study presents preventive measures used by Vietnamese nurses’, and highlights different obstacles that the nurses are facing in their work to reduce the spread of infectious disease causing diarrhea. The main obstacle seemed to be related to behavior change regarding lacking personal hygiene and inadequate cooking. The nurses’ pointed out low socio-economic status, as an especially aggravating circumstance that complicates the prevalence of changed behavior.
ACKNOWLEDGEMENT

First we would like to express our gratitude to the nursing faculty in Huế University hospital, for helping us so much and for being so welcoming. A special thanks to Ton Nu Minh Duc, Nguyen Thi Thanh Thanh, Ho Thi Thuy Trang, Nguyen Thi Anh Phuong, Le Thi Xuan, Dang Thi Thanh Phuc, Vo Thi Diem Binh and Nguyen Thi Anh Phuong. They have taken time to plan, translate and gave us great support throughout our study. Thank to the director of Nam Dong District hospital, the three health communities for letting us conduct our data collection there. We are very grateful to all the participants who choose to participate and contributing in the study with their time and engagement.

We also want to express appreciation to SIDA for giving us the MFS scholarship, enabling this study. Finally we would want to thank Brian Unis for all his support, useful critique and comments during this whole process.

Thank you!
REFERENCES


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Appendix I - Information to the participant

“Vietnamese nurses’ conception of preventive measures used to reduce the spread of infectious diseases causing diarrhea in a community hospital setting in Vietnam.
An interview study”

You are being asked to participate in the study presented above. The purpose of this study is to investigate nurses’ conception of preventive measures used to reduce the spread of infectious diseases causing diarrhea.

The study will be performed by two nursing students, Jenny Lindblad and Pauline Larsson, from Karlstad University. We will collect data for our bachelor thesis during February- March 2016. Our supervisor in Sweden is Brian Unis, lecturer at Karlstad University. The interview will be approximately 30 minutes, and with your permission the interview will be recorded. The interview will be recorded in order to be able to analyze the information revealed during the interview. All data will be handled confidentially. Your participation in the study is completely voluntary and you can at any time during the process decline to partake, without any consequences. An interpreter might be present if the language barriers are to great. You will receive a consent form if you decide to partake in the study. Please contact us for further information or questions.

Sincerely,
Pauline Larsson (Karlstad University)  
Pauline.a.larsson@gmail.com  
Jenny Lindblad (Karlstad University)  
Jennylindblad22@hotmail.com
Appendix II - Consent form

I have been given appendix I regarding information about the study:

“Vietnamese nurses’ conception of preventive measures used to reduce the spread of infectious diseases causing diarrhea in a community hospital setting in Vietnam. An interview study”

You can at any time during the process decline to partake in the study, without any consequences. With this I consent to participate in the study and that the interview will be recorded.

Signature of participant

______________________________

Signature of student

______________________________

Name of participant

______________________________

Name of student

______________________________

Date

______________________________

Date

______________________________
Appendix III - Demographic Information

1. What age is the participant:


What gender is the participant: male / female

For how long has the participant worked as a nurse:


Appendix IV - Interview Guide

INTERVIEW GUIDE

• How often do you encounter patients with diarrheal diseases?
• How do you treat patients with diarrhea?
• What do you think cause diarrhea in this area?
• How is the knowledge amongst the inhabitants about modes of transmission?
• What do you do in your role as a nurse, to prevent the spread of infection diseases in this area?
• Are there any obstacles in your preventive work?
• From your own experiences, can any improvements be done in this area, what?

Thank you for your time and participation.
Appendix V - Translated interview guide

PHỤ LỤC 1

BỘ CÂU HỎI

1. Thông tin chung của đối tượng nghiên cứu:
   A. Giới tính:
   B. Tuổi
   C. Thâm niên công tác
   D. Trình độ học vấn
   E. Khoa phòng

2. Câu hỏi mở:
   a. Số lượng trường hợp tiểu cháy đến với đơn vị của anh/chị thường xuyên như thế nào?
   b. Đơn vị của anh/chị xử trí như thế nào với trường hợp bệnh nhân tiểu cháy?
   c. Anh/chị nghĩ những nguyên nhân nào gây ra tiểu cháy cho dân số ở địa phương mình?
   d. Anh/chị nghĩ kiến thức của người dân ở địa phương mình về nguyên nhân và đường lấy truyền của bệnh tiểu cháy như thế nào?
   e. Làm một người điều dưỡng, anh/chị đã làm gì để phòng ngừa sự lấy truyền của bệnh tiểu cháy cho cộng đồng của mình?
   f. Khi thực hiện các biện pháp để phòng ngừa tiểu cháy, anh/chị gặp phải những khó khăn nào?
   g. Theo anh/chị, những lĩnh vực nào có thể cải thiện để giúp ngăn ngừa tiểu cháy ở cộng đồng của mình?

Cảm ơn anh/chị!
Appendix IV - Ethical Approval

Tillstånd för genomförande av examensarbete

Pauline Larsson, Examensarbete i omvårdnad
Studerandes namn, kurs

Jenny Lindblad, Examensarbete i omvårdnad
Studerandes namn, kurs

Ovanstående studerande inom Karlstad Universitet, ämne Omvårdnad, erhåller tillstånd att genomföra examensarbete benämnt: Vietnamese nurses’ conceptions of preventive measures used to reduce the spread of infectious disease causing diarrheaa.

Vid klinik/enhet/ motsvarande

Hue University Hospital of medicine and pharmacy
The Nam Dong district
Karlstad 760719

ort och datum

Verksamhetschef/motsvarande