RESEARCH INTO THE NURSING STUDENTS' KNOWLEDGE OF NOSOCOMIAL INFECTIONS IN PEDIATRIC WARDS

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Abstract

Nosocomial infections are a problem affecting healthcare worldwide, and pediatric wards are one of the highest risk areas for the development of such infections. In the process of providing health care to children in hospital wards, students are required to observe the specified statutory precautions that are necessary to prevent the occurrence and transmission of nosocomial infections. Insufficient awareness, lack of knowledge and non-compliance with these measures pose a huge risk to the lives and health of pediatric patients. The aim of the present study was to investigate the knowledge of nursing students regarding the prevention and transmission of nosocomial infections in pediatric wards. **Materials and Methods**: Literature analysis was applied. A cross-sectional empirical study. The opinion of 60 nursing students, who had clinical practice in the Department of Pediatrics at the Dr. Ivan Seliminski Hospital, Sliven, was studied. The research was conducted between December 2021 and April 2022. **Results:** Most of the subjects were aware of the problems associated with nosocomial infections and the precautions related to them. **Conclusions:** The up-to-date information and theoretical training they receive need to correspond to the activities they practice in pediatric wards in order to provide quality health care.

Key words: *nosocomial infections; students; children's ward.*

Introduction

Part of the integrated care is based on providing the best possible health for children. Zhelyazkova M. points out that the beginning of public health starts from the health status of children [5].

In the organisation of pediatric health care, paediatric wards and clinics are the main hospital units where curative and preventive measures related to pediatric patients are carried out [7]. Hospitalization of patients in the children's ward is performed at any time of the day and covers pathology in patients aged 0 to 18 years [1].

Pediatric wards are one of the highest risk wards for the development of hospital-acquired infections (HAIs) [8]. The immunological naivety of young children makes them more sensitive to many infections with great health consequences, as well as a higher frequency and longer duration of shedding of microorganisms [12].

The risks of developing NI as well as the clinical symptoms of infection in children are different from those in adults and often proceed in a nonspecific manner, which poses a challenge for the diagnosis of HAI [11]. Djejeva P. points out that in the health care institutions in Bulgaria a system of standard precautions, which was approved in the "Medical standard on prevention and control of nosocomial infections" in 2010 for the implementation of infection prevention and control, is used, as well as additional precautions [3]. These include safe methods of work as well as the use of personal protective equipment - hand hygiene, the use of personal protective equipment in all cases where there may be contact with blood, various body fluids, excretions and secretions; cleaning, disinfection and sterilization of equipment, linen and surroundings; hospital waste management; safe use of sharp objects [2].

Young children easily acquire and transmit infections. They often harbor infectious organisms and can shed pathogens, especially respiratory and gastrointestinal viruses, even when asymptomatic. Places where large numbers of young children congregate in close proximity favors transmission. Behavioural characteristics, such as incontinence or inadequate hygiene, infrequent washing of hands and toys or other objects, drooling and direct contact between children during play, facilitate the spread of infection [12]. The risk of infection has been shown to be related to the level of staff training [10].

The "Medical Standard for the Prevention and Control of Nosocomial Infections" states that the prevention and control of nosocomial infections is the responsibility of all staff at each institution, including students in training [8]. Both medical and non-medical staff and future health care professionals conducting clinical practice on the wards are involved in the process of health care delivery, patient interaction and communication (4).

Clinical practice is a teaching discipline that takes place in a real hospital environment and provides an optimal opportunity to build the professional competencies of trainees, but there is also a real threat of transmission of infection if the measures and imposed work prescriptions are not followed [10]. Students' academic awareness and preparation helps them to work responsibly and with adequate patient care as well as to take motivated care of their own health [6].

The aim of the present research was to study the knowledge of nursing students regarding the prevention and transmission of nosocomial infections in paediatric wards.

Materials and methods

The unit of study was every student of a nursing specialty who had clinical practice in a pediatric ward. The opinion of 60 students, who had clinical practice in the Department of Pediatrics at the Dr. Ivan Seliminski Hospital, Sliven, was studied. An anonymous survey was used for the purpose of the study. The study was conducted during the period December 2021 - April 2022. Documentary method, analysis of literature sources and analysis of empirical survey data through graphical illustration are applied. The purpose and methodology of the study were explained to the students.

Results and discussion

When asked about the respondents' subjective knowledge of the Medical Standard on the Prevention and Control of HAI, 63.3% of them stated that they were fully familiar with the contents of the document, while another 26.7% considered that they were somewhat familiar. This is understandable in practice, as the issue of HAI is embedded and addressed in the learning process alongside clinical practice in hospital settings (Fig. 1).

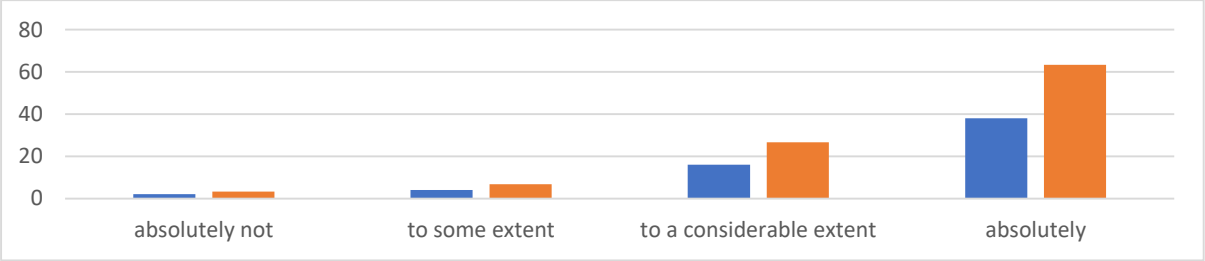

Fig. 1. Are you familiar with the medical standard for prevention and control of HAIs?

50% of the respondents indicated that they were fully aware of the category of hospital care facilities and wards according to the specific risk of an HAI, and 30% claimed to be informed to a considerable extent (Figure 2).

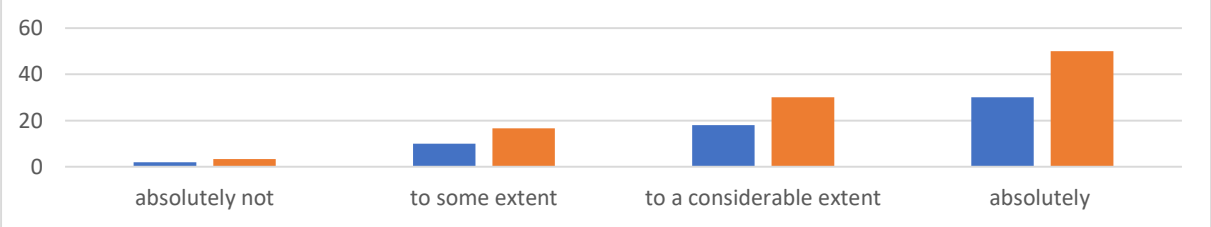

Fig. 2. Are you familiar with the categories of inpatient care facilities and wards according to the specific risk of developing an HAI?

The majority of the respondents (68.9%), stated that they were fully aware of the factors determining the risk of HAI. This testifies for the relevance of the information they received during their theoretical training (Fig. 3).

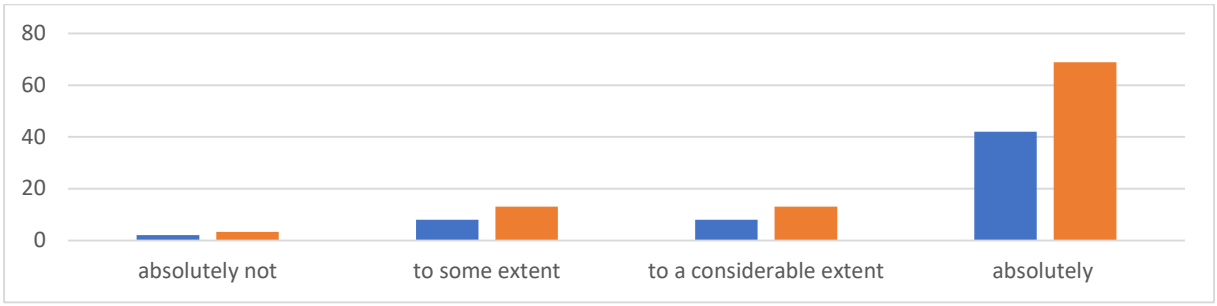

Fig. 3. Are you familiar with the factors that determine the risk of developing HAI?

The content of the data in Figure 4 shows that 60% of respondents have a full knowledge of what standard precautions include and when they are applied in practice. 26.7% of them are significantly familiar with this issue. The relative proportion of those who claim to have no knowledge (6.6%) and those who are somewhat informed (6.7%) on the issue is almost equal.

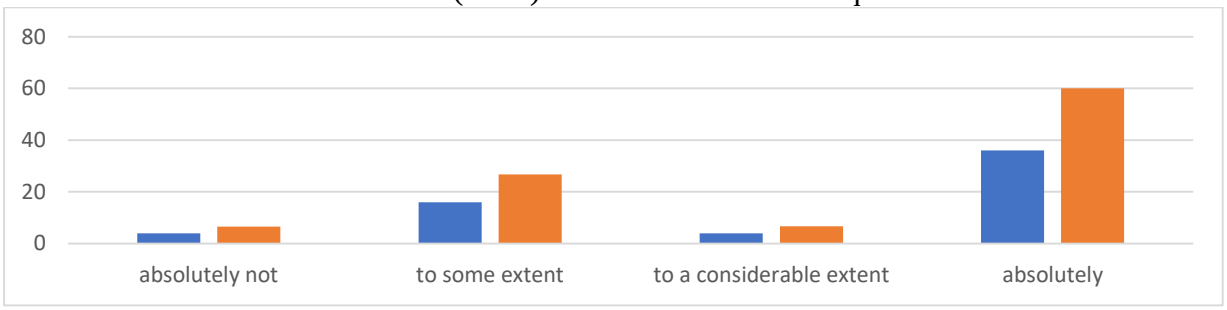

Fig. 4. Are you familiar with what the standard precautions involve and under what expected contact they are applied?

76.6% of the interviewed students stated that they use personal protective equipment when in contact with patients. It is noteworthy that, although small (10%), there is a certain proportion who do not use such means (Figure 5).

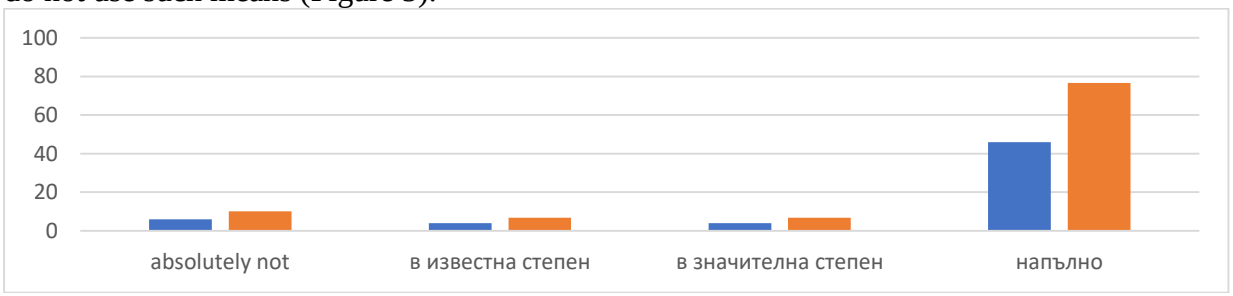

Fig. 5. Do you always use personal protective equipment when working with a patient?

For the bigger part, the students surveyed (46) were of the opinion that contaminated hands of attendants were a factor in the occurrence of HAIs in the children's ward. They are followed by those who believe that contaminated surfaces (40) as well as contaminated hands of staff (38) are a source of infection. Some of them attributed importance to contaminated instrumentation (36), toys handled by hospitalized children (34), and contaminated medicine vials (32) (Fig. 6).

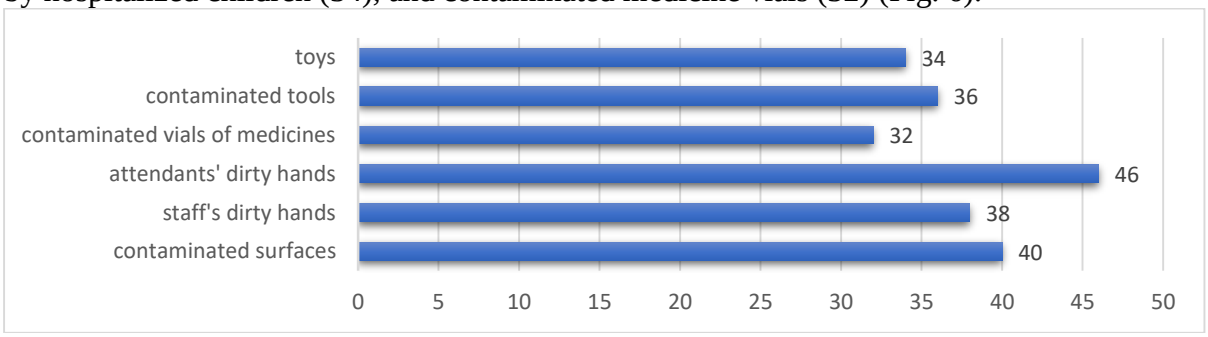

Fig. 6. What do you think are the factors for the occurrence of nosocomial infections in the pediatric inpatient setting?

The highest number is of students who thought that the main route of transmission of HAIs in children's ward was direct contact, through contaminated hands (42). Quite a few of the interviewees mentioned the possible transmission of infection through the use of contaminated instruments (38), personal objects of the patient (38), and exchange of toys between children (38). Some of the students attributed importance to non-compliance with aseptic and antiseptic rules when performing manipulations (30) and direct contact with the patients' attendants (30). Least respondents were of the opinion that transmission of infection was possible through contaminated kitchen utensils (26), placement of a peripheral venous source (26), and neglect of the hygiene and epidemiological regime in the ward by attendants (26) (Fig. 7).

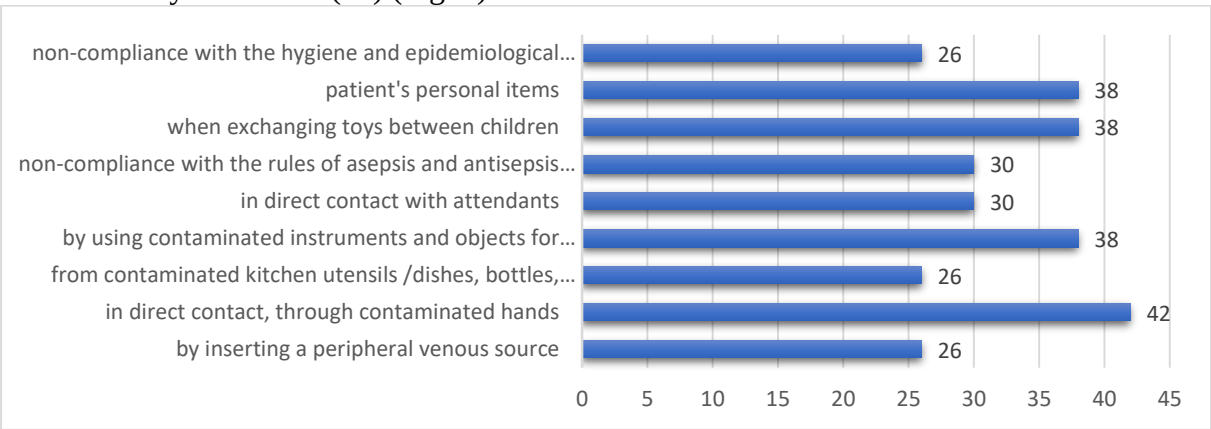

Fig. 7. In your opinion, what are the main routes of transmission of HAI in pediatric wards?

The majority of respondents (24) were of the opinion that no further activities were needed regarding the containment of HAI in the pediatric ward. A large majority of them believe that there is only some need for such measures (18), while 6 respondents indicate that additional measures are needed to a significant extent (Figure 8).

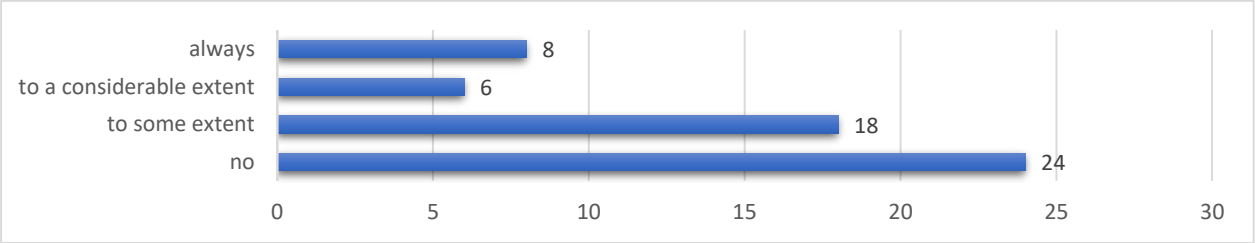

Fig. 8. Do you think that additional events and measures are needed regarding the reduction of the risks for the development of HAIs in the children's ward?

The survey revealed high awareness of the respondents of the Medical Standard on Prevention and Control of HAIs and full knowledge of the factors determining the risk of HAIs. These results are not surprising, given that students receive adequate information during their theoretical training, which is relevant and accompanies clinical practice in hospital care settings.

50% of the respondents indicated that they were fully aware of the category of hospital care facilities and wards according to the specific risk of an HAI, and 30% claimed to be informed to a considerable extent. Although small, there is a proportion of respondents who are not sufficiently familiar with the issue.

Standard precautions are set out in the legislation as mandatory requirements, which include the use of equipment to protect patients, staff and others, and safe methods of work. Regarding what the standard precautions include and in what expected contact they are applied, 60% of the students, state that they are fully aware of the issue. When asked if they always use personal protective equipment when working with a patient, a full 76.7% of students gave a positive answer. It is noteworthy that 10% of the students claimed not to use personal protective equipment, suggesting a lack not so much of knowledge but of acquired habits in practice, which in turn poses a potential risk of transmission of infection.

For the question relating to the sources of HAIs in the children's ward, respondents showed good knowledge and generally did not ignore any of the options given. It is striking that most of the students (46) surveyed were of the opinion that the source of infection in the ward was contaminated hands of attendants. Regarding the routes of transmission of HAI in pediatric wards, respondents gave importance to all the possibilities mentioned in the interview, which gives reason to believe that they are well aware of the problem. The highest number (42) of the interviewed considered direct contact, through contaminated hands, to be the main route of transmission. Undoubtedly, this is a fact that is referred to as a leading one in the scientific literature.

Regarding the need for additional events and measures to reduce the risks of developing HAI in the ward, 24 of the respondents felt that such activities were not necessary in the ward and for 18 of them the need was only to some extent. A small proportion of students (8) fully considered the need for further action to reduce the risks of HAIs, and 6 respondents agreed to a significant extent. These results are not surprising, given that the work of students in pediatric wards is confined to clinical practice hours, which in fact gives us reason to believe that the view of the overall organisation of events and measures to limit the risks of HAIs is not complete.

The results of the study are the basis for the following conclusions:

1. A large proportion of the respondents were familiar with the Medical Standard for the Prevention and Control of HAIs (63.3%), as well as the categories of hospital care facilities and wards according to the specific risk of HAIs (50%).
2. The majority of the respondents (68.9%) were fully aware of the factors determining the risk of HAI.
3. The majority of respondents (60%) had knowledge of what the standard precautions involved and in what expected contact they are applied, and 76.6% always used them in practice.
4. Interviewees had a good knowledge of the sources and main routes of transmission of HAIs in pediatric wards.
5. A large majority of respondents did not report a need for additional events and measures regarding the reduction of risks for the development of HAIs in the children's ward.

Conclusion

Students doing clinical practice in pediatric wards are some of the responsible persons for the development of HAI. Their knowledge of the prevention, control and transmission routes of nosocomial infections is of great importance in practice. The up-to-date information and theoretical training they receive needs to be consistent with the activities they practice in the paediatric wards, in order to provide quality health care for hospitalised children and to consolidate theoretical knowledge.

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