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Knowledge of Students with Blindness regarding Hand Hygiene

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ABSTRACT

Germs are everywhere and can attach to hands and other items through daily contact. Hand hygiene is one of the most crucial measures to get rid of germs and prevent their spreading. Students with blindness (SWB) are at a higher risk of infection due to using their hands to discover the world around them. The community health nurses are required to estimate students with blindness' knowledge about hand hygiene to care for these students; and support them to live and work in the community healthfully. For that, this study aimed to assess the knowledge of students with blindness regarding hand hygiene. This was conducted through a descriptive cross-sectional study at Alnour School in Mansoura City on 39 students with blindness recruited conveniently; by a structured interview questionnaire to identify demographic characteristics, and assess knowledge of the students with blindness regarding hand hygiene. All students with blindness had a poor level of knowledge regarding hand hygiene. It is recommended to design health educational programs to raise students with blindness' awareness regarding hand hygiene.

Keywords: hand hygiene, students with blindness, community health nursing

Introduction:

Disability is part of being human and is integral to the human experience. It results from the interaction between health conditions such as dementia, blindness, or spinal cord injury, and a range of environmental and personal factors. An estimated 1.3 billion people, or 16% of the global population experience a significant disability today (World Health Organization [WHO], 2023). The term "blindness" refers to a wide range of visual disabilities, from mild vision impairment that makes it difficult to read, cook, or drive to complete blindness (CNIB, 2023; National Library of Medicine, 2023). It is a troubling physical condition with deep emotional and economic effects. It leads to the most important variations in lifestyle and habits, which may cause problems in the physical, psychological, and social alteration of the blind (Sedky, Soliman, Ahmed, Fathy, & Mahmoud, 2022).

Blindness and vision impairment are serious social issues. It affects 285 million people who are estimated to be physically weaker than normal worldwide; 39 million are visually impaired, and 246 have low vision (Shenouda, Amany, & Mervat, 2018). Childhood blindness accounts for 4% of cases of blindness, and 1% of cases of visual impairment. Based on WHO (2017) report, childhood blindness was estimated at 1.14 million across the world, with more than 80% of these children living in developing countries (Assefa, Tolessa, & Ferede, 2020). It is estimated that by 2050, 61 million (52.9 to 69.3 m) people will be blind (Bourne et al., 2023).

People with disabilities are more susceptible to contracting and being impacted by pandemics like COVID-19 and SARS-CoV-2, which has had a disproportionately bad impact on their health, well-being, and quality of life. Because of SWB or partially sighted rely on touch, and other tactile senses to carry out daily tasks, or walk outside, it increases their risk of contracting infections (Oviedo-Cáceres, Arias-Pineda, Yepes-Camacho, & Montoya Falla, 2021; Senjam, 2020).

According to the WHO (2021), hand hygiene is one of the most crucial steps in the prevention of the transmission of infectious diseases. The evidence shows that hand hygiene is a highly cost-effective investment, giving outsized health benefits for comparatively little expense. It is the practice of washing hands with soap and water as well as by rubbing with hand sanitizer (Mbroh, 2019).

It is advisable to avoid touching as much as possible during these trying times to stop the spread of germs. However, it's harder than ever for SWB who rely so much on touch. When it comes to practicing good hand hygiene, one of the most efficient ways to stay protected, no one should be

left behind (Singapore Association of Visually Handicapped [SAVH], 2021). Since we use our hands more frequently when we are blind or partially sighted, it is extremely vital to be aware of basic hand hygiene (Connect center, 2021).

School nursing is a specialized area of nursing that supports academic success, fosters optimal development, safeguards, and promotes student health. SWB are supported by school nurses. They are the decision-makers who connect health and education, coordinate care, and fight for high-quality and student-centered care (Johnson, 2022). The mission of the community health nurse is to empower each student to choose the life that they want and to give them the means to achieve it. This includes supporting SWB to live and work in their community (Shenouda et al., 2018).

Aim of the Study

This study aimed to assess the knowledge of students with blindness regarding hand hygiene.

Method

Design

A descriptive cross-sectional study design was utilized to accomplish this study.

Setting

This study was carried out at Alnour School for the SWB in Mansoura City, which belongs to the West Mansoura Educational District. It includes three educational levels.

Participants

Students with blindness were included according to the following criteria: both genders, under 18 years, and grades from primary (from 4th to sixth), preparatory, and secondary.

The third primary and secondary levels of SWB were excluded because they only attended school during the semifinal and final exams.

Sampling

The researcher enrolled 39 SWB conveniently from the above-mentioned settings.

Tools for Data Collection

The researchers developed a tool for data collection after reviewing the related literature, divided into two parts.

Part I. Structured interview questionnaire to assess students with blindness demographic characteristics. The researchers used this questionnaire to assess the demographic characteristics of the SWB, such as age, gender, residence, and level of education.

Part II. Structured interview questionnaire to assess students with blindness' knowledge. The researchers used this questionnaire to assess knowledge of SWB regarding hand hygiene. This part is classified into five categories: main concept, importance, and key times of hand hygiene, steps of washing hands with soap, and using an alcohol hand rub; all these categories are composed of seven questions.

Scoring system. The researchers awarded one mark for each correct answer, and zero for did not know and falls answer as the following: hand hygiene question 1-3 (7 items), the importance of hand hygiene question 4 (4 items), key times of hand hygiene question 5 (10 items), steps of washing hands with soap question 6 (5 items), and using an alcohol hand rub question 7 (2 items).

The total score of knowledge was 28 marks. Based on the researchers' cut point, knowledge is categorized into three levels:

Poor. Scores less than 60% of the total scores (< 16.8 marks)

Fair. Scores from 60% to less than 80% of the total score (16.8 < 22.4 marks)

Good. Scores from 80% and more of the total scores (≥ 22.4 marks)

Procedure

Preparation phase. It included the following:

Administrative stage. The authorization of Faculty of Nursing, Mansoura University issued an official letter to the Directorate of Education in Mansoura City accordingly, descending in direction for permission to the West Mansoura Educational District, and finally to Alnour School to obtain their permission for conducting the current study.

Ethical considerations. The researcher obtained approval from the Research Ethics Committee, Faculty of Nursing, Mansoura University. The researcher obtained approval from each SWB and his /her safeguard before the start of the study after an explanation of the aim of the study. The researcher emphasized that the study caused no physiological or psychological harm to the participants. Privacy and confidentiality of the collected data were assured and used only for research purposes. Any participant had the right to withdraw from the study at any time without any responsibility.

Literature review. The researchers reviewed national and international works of literature on the various aspects of hand hygiene and SWB that were proposed from scientifically published

articles, internet searches, and sourcebooks. This review guided the researchers in developing the study tool.

Development of the study tools. The researchers developed a tool for data collection supported by reviewing the relevant literatures.

Face, Content, and validity. A jury of five experts in the field of community health nursing and special needs education tested *content validity*, and then the researchers carried out the required modifications.

Pilot study. It carried out on (10%) of the study participants (4 SWB), and were included in the main study sample (In, 2017) for testing, reliability, and applicability of the study tool, according to the results, the necessary modification was done.

Operational phase. It included the following steps:

Pre fieldwork preparation. Two of the researchers completed a training course on the Braille Method from 1/7/2021 to 1/8/2021 at the curricula and teaching methods department, Faculty of Education, Mansoura University. This course enabled effective communication with SWB.

Initial data collection. The researchers collected data three days a week (Sunday, Monday, and Wednesday) from 10:00 am to 12:00 pm, and lasted for two weeks. The researchers collected data, through the structured interview for each SWB individually, which took between 15 and 20 minutes depending on the interviewee's response.

A researcher out of the three started by introducing themselves to the SWB and explained the aim of the study. The researchers used data collection tool (Parts I and II); to determine SWB' demographic characteristics, and assess their knowledge regarding hand hygiene.

Statistical analysis. Data was sorted, coded, organized, categorized, and then transferred into specially designed formats. Data was analyzed using Statistical Package for Social Science (SPSS) version 21/International Business Machines/IBM. Com, U.S.A, and were presented by simple frequency tables. Mean and standard deviation for continuous variables and percentages for categorical variables.

Results

Table 1 shows that 76.9% of the SWB were in the age group ranging from 10 to less than 15 years, with a mean of 12.71 (SD: 2.12) years. Regarding gender and residence, 66.7% and 56.4% of the SWB were girls and from urban areas, respectively. An equal percentage of 33.3% from the three educational levels of the SWB. The educational level of 51.3% of SWB's mothers and 38.5% of SWB's fathers was technical school. As regards occupation, 76.9% of SWB's mothers were housewives, and 94.9% of SWB's fathers were working. Finally, 89.7% of the SWB had adequate monthly income.

Figure 1 declares that 69.2%, 41%, 15.4%, and 5.1% of the SWB obtained health education from audio, radio, booklet, and maquette, respectively.

Table 2 demonstrates that all SWB had a poor score level of knowledge regarding hand hygiene, with a total mean of 6.84 (SD: 3.81).

Table 1Demographic Characteristics of the Students with Blindness (n=39)

Items	N	%
Age (in years)		
10 - < 15	30	76.9
15 - < 20	9	23.1
$\bar{x}$ (SD)	71 (2.12)	
Gender		
Boy	13	33.3
Girl	26	66.7
Residence		
Rural	17	43.6
Urban	22	56.4
Education		
Primary	13	33.3
Preparatory	13	33.3

Secondary	13	33.3
Mother education		
Cannot read and write	1	2.6
Read and write	5	12.8
Technical schools	20	51.3
Technical institutes	4	10.3
Bachelor's degree	9	23.1
Father education		
Cannot read and write	3	7.7
Read and write	7	17.9
Technical schools	15	38.5
Technical institutes	3	7.7
Bachelor's degree	11	28.2
Mother occupation		
Working	9	23.1
Housewife	30	76.9
Father occupation		
Working	37	94.9
Does not working	2	5.1
Income/month		
Inadequate	4	10.3
Adequate	35	89.7

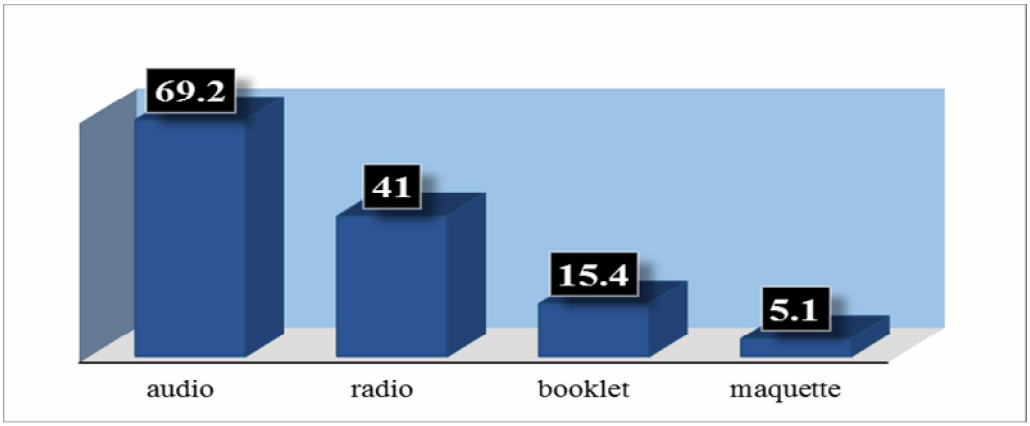

Figure 1. *Routs of Acquiring Health Education among the Students with Blindness (n= 39)*

Table 2 Knowledge *Score Levels of the Students with Blindness regarding Hand Hygiene (n=39)*

Items	Score levels						
	(Poor<60%)		(Fair60<80%)		(Good≥80%)		x̄ (SD)
	N	%	N	%	N	%	
Main concept of hand hygiene	38	97.4	1	2.6	0	0.0	1.82 (1.16)
Importance of hand hygiene	39	100.0	0	0.0	0	0.0	.82 (.72)
Key times of hand hygiene	37	94.9	2	5.1	0	0.0	2.28 (1.52)
Steps of washing hand with soap	26	66.7	12	30.8	1	2.6	1.53 (1.37)
Using alcohol hand rub	39	100.0	0	0.0	0	0.0	.38 (.67)
Total knowledge score =28	100	100	0	0.0	0	0.0	6.84 (3.81)

Note. Poor score (< 16.8 marks). Fair score (16.8 < 22.4 marks). Good score (≥ 22.4 marks).

Discussion

Hand hygiene is a very essential component of infection management, and schools are thought to be the best location to start this practice in childhood, Saima Alam et al. (as cited in Mohamed, Ramli, Azmi, & Rani, 2022). Hygienic behaviors can play an important role in the prevention of diseases. An effective hand hygiene program should include hand washing with soap and water to lower the risk of infection from hand contact. Hand washing is a cheap and efficient way to stop students from spreading contagious diseases, Nguyen (as cited in Moussa, Abdella, Abu-Elenen, & Elkazaz, 2015). People need to know how to wash their hands and use antiseptics to stop the spread of contagious diseases like COVID-19, in particular, SWB (Wijiastuti et al., 2021).

Maintaining clean hands throughout the day is one of the most crucial ways school-aged children can maintain their health. In actuality, school-based and Early Care and Education (ECE) programs that emphasize hand hygiene can lead to a decrease in gastrointestinal and respiratory illnesses as well as a reduction in missed days of work. It's crucial to promote hand washing at key times because of this (Ali et al., 2020).

To the best of the researchers' knowledge, the study population in the published articles on hand hygiene was restricted to normal students at different levels of education, except for only a study that included SWB. Accordingly, the researchers argued these studies in this part.

The results of the current study show most of the SWB have a poor score level of knowledge regarding key times of hand hygiene. This result is quite like the Indian study conducted by Pati, Kadam, and Chauhan (2014) that assessed hand hygiene behavior among urban slum children and their caretakers in Odisha, India, and reported that more than half of the children were unaware of the critical timings of hand washing.

However, this result disagrees with Khan, Ashraf, Iftikhar, and Baig-Ansari (2021), in a private school in Korangi, Karachi that assessed the impact of hand hygiene intervention on the hand washing ability of school-aged children; which revealed that the majority of the children washing hand after using the toilet and before eating the food, followed by more than half and almost half after eating food and after playing, respectively.

Based on the results of the present study, two-thirds of the SWB have a poor score level of knowledge regarding the steps of washing hands with soap. In the same line, Gawai, Taware, Chatterjee, and Thakur (2016) assessed a cross-sectional descriptive study of hand washing knowledge and practices among primary school children in Mumbai, Maharashtra, India, found that practices were not up to the recommended standard.

This result comes in agreement with Dajaan et al. (2018) who investigated hand-washing knowledge and practices among public primary schools in the Kintampo Municipality of Ghana and indicated that almost three-fourths of school children had a negative impact on washing their hands correctly, they demonstrated wrongly when they were asked to demonstrate how they wash their hands.

In the current study, all SWB have a poor total score level of knowledge regarding hand hygiene. This result is in harmony with Bayomi, Said, and Salem (2022) who assessed the enhancement of hand hygiene and face mask use during the COVID-19 pandemic among k-12 school teachers and found that knowledge related to hand hygiene was unsatisfactory before the health education intervention.

In addition, a study conducted by Shenouda et al. (2018), concluded that unsatisfactory knowledge of SWB regarding hand washing. As well, a study carried out by Moussa et al., (2015), in the city of Port Said, assessed the effectiveness of a training program on improving hand washing among children in primary schools and found that a low rate of hand washing knowledge among school children.

In contrast, a Saudi study carried out by Almoslem et al., (2021) to assess hand washing knowledge, attitudes, and practices among students in Eastern Province schools, reported that the majority of students had a high level of knowledge on hand hygiene. From the researcher's point of view, almost all the discussed research studies are conducted on normal students; this only can bring differences in results otherwise there are to some extent similarities.

Therefore, Oliveira et al. (2022) concluded that children's better habits can be promoted through interdisciplinary educational interventions carried out in a school setting. According to Cevizci et al. (2015); Klar et al., (2022), the early school years are crucial in the life of an individual. During this period, lifelong habits are learned. Thus, early school age is seen as the most

important period for turning hand washing rules into behavior.

Throughout the fieldwork phase of this study, the researchers touch on the pivotal importance of paying special attention to creating methods to suit SWB's special needs through which community health nurses able to communicate different health educational messages.

Conclusion

The researchers conclude that all the SWB had a poor level of knowledge regarding hand hygiene.

Recommendations

- Design health educational programs to raise SWB awareness regarding hand hygiene.
- Emphasize special attention to students with special needs to raise awareness of health-promoting issues.

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