# Personal Hygiene Awareness among Visually Impaired El-Nour School Female Students

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## Abstract
**Background:** Females with visual impairment require continuous support in their personal hygiene practices. They are particularly at risk due to the challenges on access to health information. **Aim:** To assess personal hygiene awareness among visually impaired El-Nour school female students. **Design:** A cross sectional descriptive design. **Setting:** This study was conducted in El-Nour school at Sohag Governorate. **Sample:** A cluster random sample of 55 visually impaired adolescent students. **Tools:** Three tools were used to collect data. **Tool one** included two parts; part one: personal characteristics and part two: visually impaired female students' knowledge about personal hygiene. **Tool two:** Included two parts; part one: The personal hygiene behavior scale and Part two: The Genital Hygiene Behaviors scale. **Tool three:** Reported practices about hand washing, teeth brushing and perineal care. **Results:** It was found that 52.7% of the studied students had unsatisfactory knowledge of personal hygiene, 78.2% & 63.6% had negative personal and genital hygiene behavior respectively and 67.3% had unsatisfactory reported practices about hand washing, teeth brushing and perineal care. Also, there were statistically significant differences between visually impaired female students' level of knowledge about personal hygiene and their father's education, mother's education, father's occupation and mother's occupation (P-value = 0.000, 0.001, 0.013 and 0.001) respectively. **Conclusion:** the studied findings revealed that visually impaired female student had unsatisfactory knowledge about personal hygiene and they had negative personal and genital hygiene behavior. **Recommendation:** Educational program about personal hygiene habits should be provided for visually impaired female students in the early age.
**Keywords:** Awareness, personal hygiene, visually impaired female students.

## Introduction
Adolescence is a critical stage of development that is marked by physical, biological, social and emotional changes. The most significant adolescent development is the process of puberty, which is associated with various physical, mental, social and sexual problems. Additionally, the difficulties of this period cause the adolescent has additional problems if it is accompanied by a sensory disability, such as visual impairment (**Aghaee-Chaghooshi et al., 2023)**.

Visual Impairment (VI) is a troubling physical condition, which refers to "any degree of vision loss that affects a person's ability to perform the usual Activities of Daily Life (ADL) and also includes blindness as well". It results in the most significant changes in visually impaired female students' lifestyle and may contribute to problems in physical health and social life **(Faheim et al., 2022)**.

Visually impaired female students are extremely vulnerable and unable to live a healthy lifestyle. They are suffering from deficiency in a variety of skills, particularly personal and menstrual hygiene because of a lack of the ability to access to health information and they received very limited health education related to self-care activities through the formal school systems or parents **(Ahmed et al., 2021)**.

Globally, the number of visually impaired females was 609 million and they were one million in Egypt, whereas they were around 101 thousand in Sohag governorate. The total number of visually impaired female students who were enrolled in different blind schools in Egypt was 1562 thousand **(Central Agency for Public Mobilization and Statistics (CAPMAS), 2022).**

Personal hygiene practices are responsibilities of individuals for engaging in healthy lifestyle to look after themselves to protect good mental and physical health and meet psychological and social needs. Positive self-care behaviors include maintaining personal hygiene practices daily **(Poe et al., 2022)**. Awareness refers to the general information and skill that people possess to motivate one's own behavior, make wise decision and achieve high levels of performance (**Martínez et al., 2021)**.

Maintenance of personal hygiene is one of the most effective habits to prevent the development and spread of infections, improve

self-confidence and keep bad odors away which include hand washing, nail cutting, teeth brushing, body bathing, cleaning of face, nose, eyes, ears and foot, wearing clean clothes and menstrual hygiene **(Samantaray et al., 2020)**.

The school health nurse should assess visually impaired female students' needs and develop health educational programs on topics addressing personal hygiene to protect them from risks such as gynecological problems and infectious diseases transmission and she also provide school health services for students with visual impairment of various degrees of severity. Additionally, school health nurse collaborates with educational staff, school social workers, school psychologists, and other health care providers to assess and prevent physical, social and psychological problems as early as possible **(Abdelazeem et al., 2022)**.

## Significance of the Study

According to study in Menoufia Governorate (2021) reported that 75% of visual impairment female students had poor knowledge about self-care activities regarding personal hygiene because they had limitations to access for general health information of personal hygiene and their needs had been widely neglected **(Ahmed et al., 2021)**.

The clinical experience of the investigator to El-Nour School in Sohag Governorate, it was observed that visually impaired female students had a problem in their personal hygiene such as unclean clothes, bad odor and long and dirty nails. So, the investigator conducted this point of research to assess their awareness regarding personal hygiene and assist them to practice their daily hygienic practice properly.

## Aim of the study

To assess personal hygiene awareness among visually impaired El-Nour school female students.

## Research question

What is a personal hygiene awareness among visually impaired El-Nour school female students?

## Subjects and Method

**Research design:**

A cross sectional descriptive research design.

## Setting

The study was carried out in El-Nour School for visual impairment pupils in Sohag Governorate.

It is a governmental school for male and female students with visual impairment was established in 1990, located in Tera Baja Street, next to Nasser Primary School in Sohag district and it is considered the only school for visually impaired students served all the entire Sohag Governorate population. The students attended the school are boys and girls with visual problems (blindness and partially sighted) from kindergarten to secondary levels of education. It consists of two buildings (classroom and dorm building), and each building contains three floors. Also, there is a place of prayer and a restaurant providing meals for the students.

## Sample

A cluster random sample was used for fifty-five (55) visually impaired female students (38 blind and 17 partially sighted females) at El-Nour school in Sohag Governorate.

**Inclusion criteria:**

1. Female students aged from 11 to 19 years.
2. Female students who have menstruation.

## Tools of the study

An individualized interview structured questionnaire was developed by investigators after reviewing related literature. It included three tools:

**Tool one:** Included two parts:

**Part One:** It included personal characteristics of visually impaired female students such as: age, study grade, place of residence, living in the school dormitory, parent's education, parent's occupation and number of family members.

**Part two:** It assessed visually impaired female students' awareness about personal hygiene. It composed of (59) questions about personal hygiene (3 items), hand washing (5 items), nail cutting (4 items), face hygiene (4 items), eye hygiene (2 items), ear hygiene (3 items), nose hygiene (3 items), teeth brushing (6 items), clean clothes (4 items), hair care (3 items), body bathing (2 items), feet care (3 items), anatomy of female reproductive system (2 items), menstruation (6 items) and menstrual hygiene (9 items).

**Scoring system**: Correct answer was scored (1), incorrect answer was scored (zero). The total knowledge satisfaction level was categorized into two categories; satisfactory level for ≥ 60% equal to (35 correct answers) which meant a visually impaired female student should had (score 35) and unsatisfactory level for < 60% of the total correct answers **(Shenouda et al., 2018)**.

**Tool two:** Consisted of two parts

**Part one: The Personal Hygiene scale (PHS)** developed by **(Saffari et al., 2014).** It assessed personal hygiene behaviors. It contains 21 items on 11 main areas including oral hygiene (4 items), bathing (3 items), hand washing (2 items), hair care (2 item), nail care (1 item),

foot care (1 item), wearing clean clothes (2 item), nose care (2 item), attention to body odor (1 item), eye care (2 items), and ear care (1 item).

**Scoring system**: Each item had a response as never (0), sometimes (1), often (2) and always (3). All items on the scale were in a positive direction. The minimum score of the scale 0 and maximum score 63. The total score calculated by summing the scores of all 21 items and then converted into percent. The positive personal hygiene behaviors considered if the score was $\geq 60$ and negative personal hygiene behaviors if it was $< 60$.

**Part two: The Genital Hygiene Behaviors Scale** developed by **(Karahan, 2017).** It assessed genital hygiene behaviors. It consists of 23 items answered in the five-point Likert type and has three subdimensions: "general hygiene behaviors", "menstrual hygiene" and "abnormal finding awareness".

**Scoring system:** A 5 point Likert scale with items ranging from "never" to "always". Each item had a response as never (1), rarely (2), sometimes (3), often (4), and always (5). Reverse coding was made for negative items (7, 14, 19, 20, and 23). The minimum score of the scale 23 and maximum score 115. The positive genital hygiene behaviors considered if the score was ≥60 and negative genital hygiene behaviors if it was <60.

**Tool III:** Reported practice was used for hand washing developed by **(WHO, 2020)**, teeth brushing developed by (**American Dental Association, 2019)** and perineal care developed by **(Mahmoud et al., 2014)**.

**Scoring system:**The interpreted item was **"Yes"** scored "1" and step was **"No"** scored "0". The satisfactory reported practice considered ≥ 60% equal to (7 items for hand washing), (3 items for teeth brushing), and (5 items for perineal care) and unsatisfactory practice was < 60% of the total items **(Shenouda et al., 2018)**.

## Reliability of tool

The reliability of the tools was examined using the Cronbach alpha test.

| Tools | No. of items | Cronbach Alpha Test |
|---|---|---|
| Knowledge | 59 | 0.842 |
| PHS | 21 | 0.946 |
| GHBS | 23 | 0.801 |
| Reported practice | 24 | 0.884 |
| Total questionnaire | 127 | 0.883 |

## Validity of tools

The content validity of the tool was reviewed by (5) experts in community health nursing, Assiut University. Every member was asked to assess the tool contents and its structural design to ensure clarity of the questions. All comments and suggestions were considered and reworded and sequence of some statements was carried out accordingly.

## Methodology

### Administrative phase

An official letter of approval was obtained from the Dean of the faculty of Nursing at Sohag University to the head of the of Central Agency for Public Mobilization and Statistics (CAPMAS), Sohag Branch and undersecretary of the Ministry of Education in Sohag sent an official approval to the director of El-Nour school for visual impairment to conduct the study.

## Pilot study

It was conducted on **10%** (6) of visually impaired female students included in the study due to there were not modifications. It aimed to evaluate the sheet's clarity and determine the time required to fill it.

## Data collection phase

## Ethical consideration

Research proposal was approved by the Ethical Committee in the Faculty of Nursing. There were no risk for visually impaired female students from a further application of the research, oral consent of visually impaired female students who were willing to participate in the study was obtained after explaining the nature and aim of the study, study subjects ensured that the data were not be reused without the permission, anonymity and confidentiality of student's data were ensured and the studied subjects had the right to refuse to participate in the study or withdraw at any time.

## Field of work

Data collection for this study was conducted over a period of 9 weeks from the beginning of October to the beginning of December 2022 after an official approval was taken from the undersecretary of the Ministry of Education in Sohag to the director of El-Nour school.

The investigators attended to the school two days per week on Tuesday and Wednesday from 9.00 Am to 2.00 Pm at school official time and data was collected for visually impaired female student during break and absence of teacher. Also, the investigator attended to the school most days in the evening

from 3.00 Pm to 7.00 Pm to collect data from those who reside in school dormitory. In each interview, the investigator interviewed 3-4 students daily. The time was spent with each student was 1 to 1.15 hours approximately depending on the interviewee's response. Each student was interviewed individually at the psychologist's office or a social worker's office.

For assessing the knowledge and behavior of them regarding personal hygiene and genital care, the investigator interpreted the questions to the student and marked exactly the interviewee's answers in the questionnaire.

For assessing the reported practices of them regarding hand washing, teeth brushing and perineal care steps, the investigator asked each student to report how to perform hand washing, teeth brushing and perineal care steps **(using tactile perception on a model)** and then investigator checked the reported step in the questionnaire.

## Statistical Analysis

Data entry and analysis were done using Statistical Package for Social Science (SPSS) software version 23. Data was presented as number, percentage, mean and standard deviation. Chi-square ($x^2$) test was used to compare between qualitative variables. The Cronbach alpha test was used to assess the reliability of components of questionnaire. P-value considered statistically significant when its value was $\leq 0.05$.

## Results

**Table (1**): Reveals that 50.9% of the studied females are < 14 years and 49.1% of them are in preparatory grade. Regarding to place of residence, 65.5% of them are living in rural area and 58.2% of them are residing in a school dormitory. Concerning their parent s' education, 41.8% of their father and 43.6% of their mother have a secondary level of education.

**Figure (1):** Represents that 47.3% of the studied female students have a satisfactory knowledge about personal hygiene, while 52.7% of them have unsatisfactory knowledge.

**Figure (2):** Shows that 21.8% of the studied female students have positive personal hygiene behavior, while 78.2% of them have negative personal hygiene behavior.

**Figure (3):** illustrates that 36.4% of the studied female student have positive genital hygiene behavior, while 63.6% of them have negative genital hygiene behavior.

**Figure (4):** Presents that 32.7% of visually impaired female student have a satisfactory score of reported practice about hand washing, teeth brushing and perineal care, while 67.3% of them have unsatisfactory score of reported practice.

**Table (2):** Clarifies that there is statistically significant relation between visually impaired female students' level of knowledge about personal hygiene and their father's education, mother's education, father's occupation and mother's occupation (P-value = 0.000, 0.001, 0.013 and 0.001) respectively.

**Table (3):** States that there is statistically significant relation between visually impaired female students' level of behaviors regarding personal hygiene and their father's education, mother's education, father's occupation and mother's occupation (P-value = 0.009, 0.002, 0.006 and 0.001) respectively.

**Table (4):** Illustrates that there is statistically significant relation between visually impaired female students' level of reported practice about hand washing, teeth brushing and perineal care and their mother's educational level, father's occupation and mother's occupation (P-value = 0.005, 0.042 and 0.001) respectively.

## Results

**Table (1):** Distribution of visually impaired El-Nour school female students according to their personal characteristics in Sohag Governorate, 2022

| Personal characteristics | No. (55) | % |
|---|---|---|
| **Age: (years)** | | |
| < 14 | 28 | 50.9 |
| ≥ 14 | 27 | 49.1 |
| Mean ± SD (Range) | 13.98 ± 1.95 (11.0-19.0) | |
| **Study grades:** | | |
| Primary | 10 | 18.2 |
| Preparatory | 27 | 49.1 |
| Secondary | 18 | 32.7 |
| **Place of residence:** | | |
| Rural | 36 | 65.5 |
| Urban | 19 | 34.5 |
| **living in the school dormitory:** | | |
| Yes | 32 | 58.2 |
| No | 23 | 41.8 |
| **Father's educational level:** | | |
| Illiterate | 9 | 16.4 |
| Basic education | 6 | 10.9 |
| Secondary | 23 | 41.8 |
| University and above | 17 | 30.9 |
| **Mother's educational level:** | | |
| Illiterate | 15 | 27.3 |
| Basic education | 4 | 7.3 |
| Secondary | 24 | 43.6 |
| University and above | 12 | 21.8 |
| **Father's occupation:** | | |
| Employee | 12 | 21.8 |
| Skilled worker | 15 | 27.3 |
| Free business | 23 | 41.8 |
| Not working | 5 | 9.1 |
| **Mother's occupation:** | | |
| Working | 8 | 14.5 |
| Not working | 47 | 85.5 |
| **Number of family members:** | | |
| 4 – 6 | 28 | 50.9 |
| > 6 | 27 | 49.1 |

**Figure (1):** Total score of visually impaired El-Nour school female students' knowledge about personal hygiene in Sohag Governorate, 2022

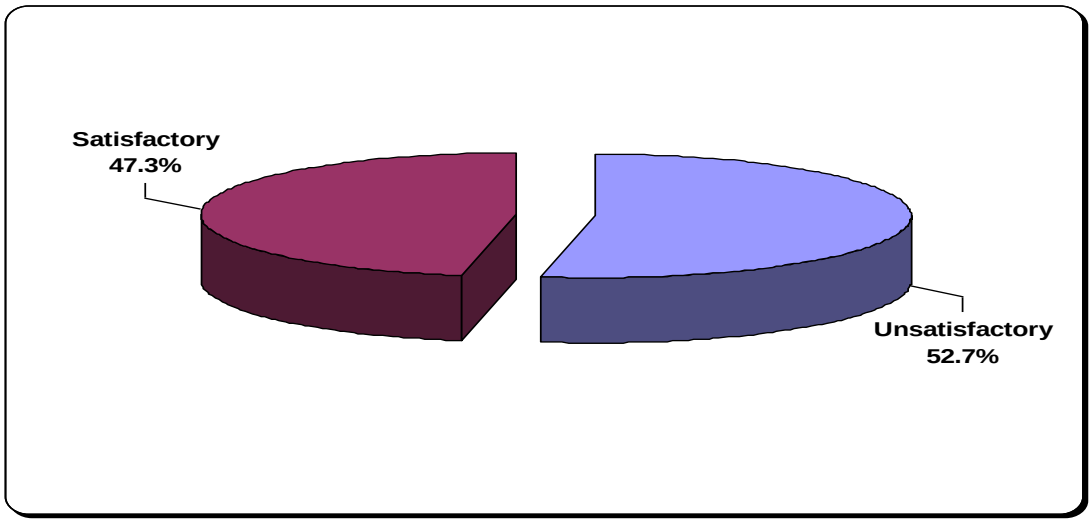

**Figure (2):** Total score of visually impaired El-Nour school female students' behaviors regarding personal hygiene in Sohag Governorate, 2022

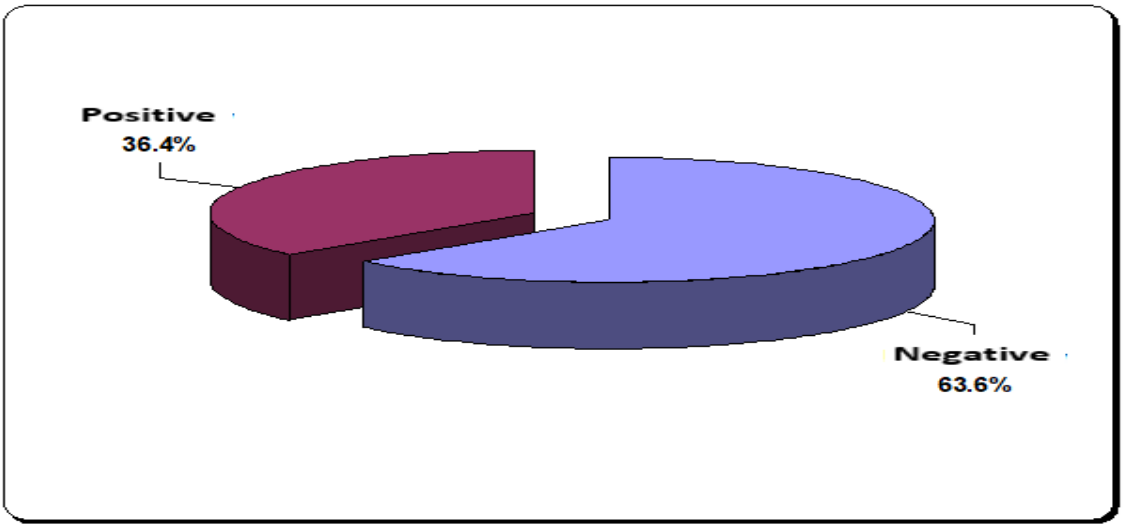


**Figure (3):** Total score of visually impaired female students' behaviors regarding genital hygiene in Sohag Governorate, 2022

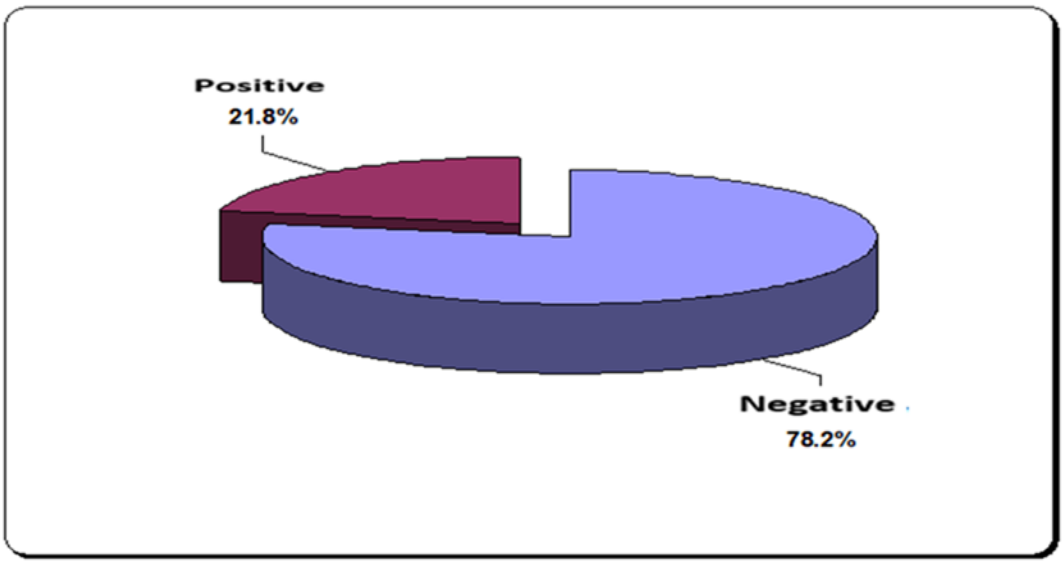


**Figure (4):** Total score of visually impaired female students' reported practice about hand washing, teeth brushing and perineal care in Sohag Governorate, 2022

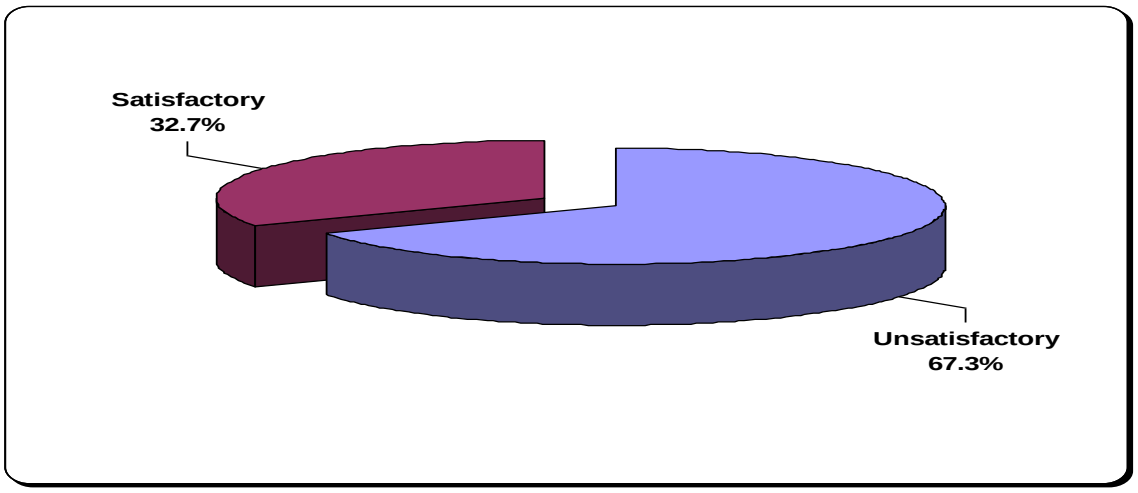

**Table (2):** Relation between visually impaired El-Nour school female students' personal characteristics and their knowledge about personal hygiene in Sohag Governorate, 2022.

| Personal characteristics | Knowledge level | | | | P-value |
|---|---|---|---|---|---|
| | Unsatisfactory | | Satisfactory | | |
| | No. | % | No. | % | |
| **Age: (years)** | | | | | |
| < 14 | 17 | 60.7 | 11 | 39.3 | 0.227 |
| ≥ 14 | 12 | 44.4 | 15 | 55.6 | |
| **Study grades:** | | | | | |
| Primary | 7 | 70.0 | 3 | 30.0 | |
| Preparatory | 14 | 51.9 | 13 | 48.1 | 0.427 |
| Secondary | 8 | 44.4 | 10 | 55.6 | |
| **Place of residence:** | | | | | |
| Rural | 20 | 55.6 | 16 | 44.4 | 0.563 |
| Urban | 9 | 47.4 | 10 | 52.6 | |
| **living in the school dormitory:** | | | | | |
| Yes | 18 | 56.3 | 14 | 43.8 | 0.537 |
| No | 11 | 47.8 | 12 | 52.2 | |
| **Father's educational level:** | | | | | |
| Illiterate or basic education | 12 | 80.0 | 3 | 20.0 | |
| Secondary | 15 | 65.2 | 8 | 34.8 | 0.000* |
| University and above | 2 | 11.8 | 15 | 88.2 | |
| **Mother's educational level:** | | | | | |
| Illiterate or basic education | 15 | 78.9 | 4 | 21.1 | |
| Secondary | 13 | 54.2 | 11 | 45.8 | 0.001* |
| University and above | 1 | 8.3 | 11 | 91.7 | |
| **Father's occupation:** | | | | | |
| Employee | 2 | 16.7 | 10 | 83.3 | |
| Skilled worker | 12 | 80.0 | 3 | 20.0 | 0.013* |
| Free business | 12 | 52.2 | 11 | 47.8 | |
| Not working | 3 | 60.0 | 2 | 40.0 | |
| **Mother's occupation:** | | | | | |
| Working | 0 | 0.0 | 8 | 100.0 | 0.001* |
| Not working | 29 | 61.7 | 18 | 38.3 | |
| **Number of family members:** | | | | | |
| 4 – 6 | 12 | 42.9 | 16 | 57.1 | 0.135 |
| > 6 | 17 | 63.0 | 10 | 37.0 | |

**Table (3):** Relation between visually impaired El-Nour school female students' personal characteristics and their behaviors regarding personal hygiene in Sohag Governorate, 2022.

| Personal characteristics | Personal Hygiene Scale level | | | | P-value |
|---|---|---|---|---|---|
| | Negative | | Positive | | |
| | No. | % | No. | % | |
| **Age: (years)** | | | | | |
| < 14 | 23 | 82.1 | 5 | 17.9 | 0.469 |
| ≥ 14 | 20 | 74.1 | 7 | 25.9 | |
| **Study grades:** | | | | | |
| Primary | 8 | 80.0 | 2 | 20.0 | |
| Preparatory | 24 | 88.9 | 3 | 11.1 | 0.086 |
| Secondary | 11 | 61.1 | 7 | 38.9 | |
| **Place of residence:** | | | | | |
| Rural | 30 | 83.3 | 6 | 16.7 | 0.303 |
| Urban | 13 | 68.4 | 6 | 31.6 | |
| **living in the school dormitory:** | | | | | |
| Yes | 27 | 84.4 | 5 | 15.6 | 0.190 |
| No | 16 | 69.6 | 7 | 30.4 | |
| **Father's educational level:** | | | | | |
| Illiterate or basic education | 14 | 93.3 | 1 | 6.7 | |
| Secondary | 20 | 87.0 | 3 | 13.0 | 0.009* |
| University and above | 9 | 52.9 | 8 | 47.1 | |
| **Mother's educational level:** | | | | | |
| Illiterate or basic education | 17 | 89.5 | 2 | 10.5 | |
| Secondary | 21 | 87.5 | 3 | 12.5 | 0.002* |
| University and above | 5 | 41.7 | 7 | 58.3 | |
| **Father's occupation:** | | | | | |
| Employee | 5 | 41.7 | 7 | 58.3 | |
| Skilled worker | 14 | 93.3 | 1 | 6.7 | 0.006* |
| Free business | 20 | 87.0 | 3 | 13.0 | |
| Not working | 4 | 80.0 | 1 | 20.0 | |
| **Mother's occupation:** | | | | | |
| Working | 2 | 25.0 | 6 | 75.0 | 0.001* |
| Not working | 41 | 87.2 | 6 | 12.8 | |
| **Number of family members:** | | | | | |
| 4 – 6 | 19 | 67.9 | 9 | 32.1 | 0.059 |
| > 6 | 24 | 88.9 | 3 | 11.1 | |

**Table (4):** Relation between visually impaired El-Nour school female students' personal characteristics and their reported practice about hand washing, teeth brushing and perineal care in Sohag Governorate, 2022.

| Personal characteristics | Practice level | | | | P-value |
|---|---|---|---|---|---|
| | Unsatisfactory | | Satisfactory | | |
| | No. | % | No. | % | |
| **Age: (years)** | | | | | |
| < 14 | 19 | 67.9 | 9 | 32.1 | 0.925 |
| ≥ 14 | 18 | 66.7 | 9 | 33.3 | |
| **Study grades:** | | | | | |
| Primary | 7 | 70.0 | 3 | 30.0 | |
| Preparatory | 20 | 74.1 | 7 | 25.9 | 0.422 |
| Secondary | 10 | 55.6 | 8 | 44.4 | |
| **Place of residence:** | | | | | |
| Rural | 25 | 69.4 | 11 | 30.6 | 0.637 |
| Urban | 12 | 63.2 | 7 | 36.8 | |
| **living in the school dormitory:** | | | | | |
| Yes | 23 | 71.9 | 9 | 28.1 | 0.391 |
| No | 14 | 60.9 | 9 | 39.1 | |
| **Father's educational level:** | | | | | |
| Illiterate or basic education | 13 | 86.7 | 2 | 13.3 | |
| Secondary | 16 | 69.6 | 7 | 30.4 | 0.056 |
| University and above | 8 | 47.1 | 9 | 52.9 | |
| **Mother's educational level:** | | | | | |
| Illiterate or basic education | 17 | 89.5 | 2 | 10.5 | |
| Secondary | 16 | 66.7 | 8 | 33.3 | 0.005* |
| University and above | 4 | 33.3 | 8 | 66.7 | |
| **Father's occupation:** | | | | | |
| Employee | 4 | 33.3 | 8 | 66.7 | |
| Skilled worker | 12 | 80.0 | 3 | 20.0 | 0.042* |
| Free business | 17 | 73.9 | 6 | 26.1 | |
| Not working | 4 | 80.0 | 1 | 20.0 | |
| **Mother's occupation:** | | | | | |
| Working | 1 | 12.5 | 7 | 87.5 | 0.001* |
| Not working | 36 | 76.6 | 11 | 23.4 | |
| **Number of family members:** | | | | | |
| 4 – 6 | 16 | 57.1 | 12 | 42.9 | 0.103 |
| > 6 | 21 | 77.8 | 6 | 22.2 | |

## Discussion

Personal hygiene refers to "the practice of maintaining cleanliness of one's own body". It involves the cleaning of all body parts (hand, nail, face, eye, ear, mouth, nose, hair, clothes, body, feet and genital area). The proper hygiene is essential for visually impaired female students because they are suffering from deficiency in a variety of skills, particularly personal and menstrual hygiene and need special focus to improve their knowledge and practices during their adolescence period to maintain their well-being.

The current study aimed to assess personal hygiene awareness among visually impaired El-Nour school female students.

**Regarding the total score of the students' knowledge about personal hygiene**, this study demonstrated that more than half of them had unsatisfactory knowledge about personal hygiene due to the visually impaired female students always depend on others or need assistance to perform their personal hygiene activities due to their visual impairment and need more education from their parents and school which is very limited.

This finding agreed with **Shenouda et al., (2018)** who conducted a study titled **"** Evaluation of personal hygiene among students with visual impairment at Al-Nour School for Blind: Ismailia City" and stated that more than three quarter of visually impaired students had unsatisfactory knowledge about personal hygiene. It also agreed with **Samantaray et al., (2020)** who studied "Effect of audio drama on knowledge regarding personal hygiene practices among visually impaired adolescent girls in a selected blind School of Bhubaneswar" and found that three quarter of visually impaired adolescent girls had poor knowledge about personal hygiene.

On other hand, this finding disagreed with **Sajjan & Natekar, (2022)** who conducted a

study titled " Effect of Audio Drama on Knowledge to Promote Personal Hygiene, Nutritional Status, Yoga and Exercise Among Visually Challenged Adolescents at Selected Blind School at Bagalkot" and found that (10%) of visually challenged adolescents had poor knowledge about personal hygiene.

**Regarding the total score of the studied students about personal hygiene behavior**, this study showed that more than three quarter of them had negative personal hygiene behavior due to lack of training and educational program about their positive personal hygiene behaviors and non-availability of personal hygiene supplies at school and home.

This finding agreed with **Ghazy & Fathy, (2022)** who carried out a study titled "Effect of Audio drama based educational program on healthy life style practices among visually impaired students" and found that more than two third of visually impaired students had poor personal hygiene behavior.

While, the current finding disagreed with **Nadagaddi et al., (2020)** who carried out a study titled " Effectiveness of audio assisted teaching programme on healthy life style activities among visually impaired children of selected blind school at Vijayapura" and found that more than three quarter of visually impaired children had good personal hygiene behavior.

**Regarding the total score of visually impaired female students about genital hygiene behavior**, this study stated that more than three fifth of visually impaired female students had negative genital hygiene behavior due to the visually impaired female students have great efforts to practice the menstrual hygiene in proper way due to their visual impairment and lack of knowledge about how to maintain positive menstrual hygiene behaviors.

The current result was in the same line with **Ahmed et al., (2021)** who conducted a study titled **"** Audio- Drama Nursing Intervention Utilizing Peer Education on Menstrual Hygiene and Sickness Management among Blind Adolescents" and found that four fifth of blind adolescent girls had poor menstrual hygiene behavior. Also, this result was in the same line with **Özdemir & Kılıç Uçar., (2022)** who conducted a study titled**"** Determining the genital hygiene behaviours of visually impaired women "and found that the majority of visually impaired women had negative genital hygiene behaviors.

While, this finding was in contrast with **Kayalvizhi et al., (2019)** who conducted a study titled **"** Effectiveness of audio drama on knowledge and practice regarding menstrual hygiene among visually challenged adolescent girls" and showed that more than fourth fifth of visually challenged adolescent girls had good menstrual hygiene behavior.

Also, this finding disagreed with **Mamuk et al., (2022)** who conducted a study titled **"** An Assessment of Menstrual and Genital Hygiene Behaviours among Adolescent Females at Gazimağusa, Northern Cyprus "and found that more than three quarter of adolescent females had a right genital hygiene behavior.

**Concerning the total score of reported practice about hand washing, teeth brushing and perineal care**, this study demonstrated more than two third of visually impaired female students had unsatisfactory score of reported practice due to their lack of vision which is a constraint to understanding and mastering the proper technique of perineal care procedure and their school or parents are not educating them how to perform this technique sufficiently.

This finding agreed with **Shenouda et al., (2018)** who demonstrated that more than three quarter of visually impaired students had unsatisfactory practices of tooth brushing and hand washing. Also, it agreed with **Ghazy & Fathy, (2022)** who found that more than three fifth of visually impaired women had poor practices of tooth brushing and hand washing.

This finding also agreed with **Faheim et al., (2022)** who conducted a study titled**"** Effectiveness of Peer Audio Player Educational guidelines on Menstrual Hygiene and Problems Management among Blind Adolescent Girl Students" and found that more than three quarter of blind adolescent girl students had inadequate practices about hand washing and perineal care. while, this finding was in congruent with **Nadagaddi et al., (2020)** who found that more than two third of visually impaired children had good practices regarding tooth brushing and hand washing

**Regarding relation between the studied female students' personal characteristics and their knowledge about personal hygiene**, this study demonstrated that there were statistically significant differences between the studied students' knowledge about personal hygiene and their father's education, mother's education, father's occupation and mother's occupation due to parents with high education had information about how deal with children with visual impairment and had knowledge about personal hygiene needed for them.

This result agreed with **Çelik & Yüce, (2019)** who conducted a study titled **"**Investigation of the Awareness and Habits of Secondary School Students about Cleanliness and Hygiene from Various Variables and revealed that there was statistically significant difference between knowledge level of secondary school students and their parent educational status and occupation.

Also, this finding agreed with **Begum et al., (2022)** who conducted a study titled **"**Knowledge and Practice of Personal Hygiene Among the High School Students in A Rural Area of Mymensingh, Bangladesh" and revealed that knowledge scores of high school students about personal hygiene were influenced by educational level and occupation of their parents.

On other hand, this finding disagreed with **Saraswathy, (2021)** who conducted a study titled **"** A study to Assess the Awareness of Personal Hygiene among School Age Children at Selected School, Amroha" and revealed that there was relation between knowledge of personal hygiene with sociodemographic data such as age, area of residence and no association with parent educational status.

**Regarding relation between the studied female students' personal characteristics and their behaviors regarding personal hygiene**, the current study demonstrated there were statistically significant differences between the studied students' behaviors regarding personal hygiene and their father's education, mother's education, father's occupation and mother's occupation due to parents with high education can understand personal hygiene behaviors needed in their daily living activities and provide their females with more and accurate hygiene behaviors.

This finding was in same line with **Mahajan et al., (2020)** who conducted a study titled **"** Hygiene related practices amongst school children living in a slum of Pune" and showed that parent's education and occupation had significant influence on personal hygiene habits of children. Also, this finding agreed with **Pukhraj et al., (2021)** who conducted a study titled **"** Knowledge and Practices Regarding Personal Hygiene among Primary School Children" and stated that there was significant relationship between score of practices of children regarding personal hygiene with educational status of parents.

While, the current finding was in congruent with **Elmadani et al., (2021)** who conducted study on" Assessment of the Personal Hygiene Practices among Primary Schools Children, Sudan: A Cross-Sectional School-Based Study " and stated that there was no relatioship between personal hygiene behaviors among primary school children and the educational level of their parents.

**Regarding relation between visually impaired female students' personal characteristics and their reported practices about hand washing, teeth brushing and perineal care,** this study demonstrated that there were statistically significant differences between visually impaired female students' level of reported practice about hand washing, teeth brushing and perineal care procedure and their mother's education, father's occupation and mother's occupation due to their highly educated mother aware and able to educate their females with accurate hand washing, teeth brushing and perineal care technique.

This finding agreed with **Shenouda et al., (2018)** who revealed that there was relationship between studied students' observational practice regarding hand washing and teeth brushing and their mother educational levels and occupation. Also, it agreed with **Faheim et al., (2022)** who revealed that there was significant association between score of self-reported practices regarding hand washing and perineal care and their mother educational levels and occupation.

Also, this finding agreed with **Ordinioha et al., (2022)** who conducted a study titled **"** Comparative Study of Personal Hygiene in Public and Private Schools in an Urban Local Government Area of Rivers State" and revealed that there was significant association between score of practice regarding hand washing and teeth brushing and their parental socio-economic background such as mother educational levels and parental occupation.

On other hand, the current finding disagreed with **Nadagaddi et al., (2020)** who revealed that there was an association between practice regarding hand washing and teeth brushing and sociodemographic characteristics of the study sample such as age, class education of the students and residential area of the students.

This study revealed that visually impaired female students at El-Nour school in Sohag governorate had unsatisfactory knowledge about personal hygiene, negative behavior regarding personal and genital hygiene behavior and unsatisfactory practice regarding hand washing, teeth brushing and perineal care because they always depend on others and need assistance to perform their personal hygiene activities due to their visual impairment and need more education from their parents and school which is very limited. This may lead to infectious disease or genital

tract infection that will affect on their health, school attendance and academic achievement. So, it is important to provide continuous school health education and training program with the active involvement of school health nurse and social workers for them to improve their knowledge and practice related to personal hygiene at home and school.

## Conclusion

Visually impaired female student had unsatisfactory knowledge about personal hygiene and they had negative personal and genital hygiene behavior. Also, they had unsatisfactory reported practice about hand washing, teeth brushing and perineal care.

Personal characteristics such as parents' educational level and occupation associated significantly with knowledge of them and their personal hygiene behaviors. Also, there were statistically significant relation between mother' educational level and occupation and their genital hygiene behavior as well as their reported practice.

## Recommendations

- Activating the role of educational sessions of audio drama and presence of educational materials written in Braille to improve El-Nour school female students' awareness about personal hygiene and using full mouth and perineal area model to develop personal hygiene skills by using tactile perception technique.
- Training and educational program about personal hygiene habits for visually impaired female students should be provided in the early age.
- Further studies may be required using a larger sample size and a wider geographic area that include visually impaired girls and their mothers in order to understand special needs of them. Also, future research to study variables affecting on their awareness using different methodology.

## Reference


1. **Abdelazeem, A., Hossein, Y., Eltomy, E., & Mohamed, M. (2022)**. Healthy Lifestyle practices among Visually Impaired Adolescent Students at El-Noor School in Minia Governorate. *Minia Scientific Nursing Journal*, *11*(1), 21-31.
2. **Aghaee-Chaghooshi, S., khodabakhshi-koolaee, A., & Falsafinejad, M. (2023).** Puberty challenges of female adolescents with visual impairment. *British Journal of Visual Impairment*, *41*(1), 96-107.
3. **Ahmed, S., Salem, S., feshawy, R., & Amr, A. (2021)**. Audio- Drama Nursing Intervention Utilizing Peer Education on Menstrual Hygiene and Sickness Management among Blind Adolescents. *Tanta Scientific Nursing Journal, 20 (2*), 227-255.
4. **American Dental Association (ADA). (2019)**. Brushing Your Teeth. Accessed on 2 October 2021.Available at https://www.mouthhealthy.org/en/az-topics/b/brushing-your-teeth
5. **Begum, M., Alam, F., Hossain, M., & Hasan, A. (2022).** Knowledge and Practice of Personal Hygiene Among the High School Students in A Rural Area of Mymensingh, Bangladesh. *Community Based Medical Journal*, *11*(2), 136-143.
6. **Çelik, E. & Yüce, Z. (2019)**. Investigation of the Awareness and Habits of Secondary School Students about Cleanliness and Hygiene from Various Variables. *IJARIIE*, *7*(6), 173-184.
7. **Central Agency for Public Mobilization and Statistics (CAPMAS). (2022).** Percentage distribution of Egyptians having disability (vision disability). Accessed on 18 December 2022. Available at https://www.capmas.gov.eg/Pages/Publications.aspx?page_id=5104
8. **Elmadani, M., Elamin, E., Tamomh, A. G., & Twum, P. (2021)**. Assessment of the Personal Hygiene Practices among Primary Schools Children, Sudan: A Cross-Sectional School-Based Study. *situations*, 15, 16.
9. **Faheim, S., Ahmed, S., Abdelhafez, A., Mohamed, N., & Ahmed, S. (2022).** Effectiveness of Peer Audio Player Educational guidelines on Menstrual Hygiene and Problems Management among Blind Adolescent Girl Students. *Egyptian Journal of Health Care*,*13(3)*,121-137.
10. **Ghazy, H., & Fathy, D. (2022).** Effect of Audio drama based educational program on healthy life style practices among visually impaired students. *Egyptian Journal of Health Care, 13(1),* 2051-2065.
11. **Karahan, N. (2017).** Development of a genital hygiene behavior scale: Validity and reliability study. *Istanbul Medical Journal*, *18*(3), 157-162.
12. **Kayalvizhi, V., Maheswari, R., Renuka, K. (2019)**. Effectiveness of audio drama on knowledge and practice regarding menstrual hygiene among visually challenged adolescent girls. *JETIR, 6 (4),* 659-66.

13. **Mahajan, S., Gothankar, J. & Deshmukh, R. (2020).** Hygiene related practices amongst school children living in a slum of Pune. *Indian Journal of Forensic and Community Medicine*, *7*(1), 38-41.
14. **Mahmoud, T., Bayomi, S & Osman, S. (2014).** Educational Program About Reproductive Health for Blind and Deaf Adolescent Girls in Assiut Governorate. Assiut Scientific Nursing Journal, *2*(4), 57-67.
15. **Mamuk, R., Parlan, H., Eren, A., DEVECİ, M., & Akdeniz, E. (2022**). An Assessment of Menstrual and Genital Hygiene Behaviours among Adolescent Females at Gazimağusa, Northern Cyprus. *Clinical and Experimental Health Sciences*, *12*(1), 185-191.
16. **Martínez, N., Connelly, C. , Pérez, A., & Calero, P. (2021)**. Self-care: A concept analysis. *International journal of nursing sciences*, *8*(4), 418-425.
17. **Nadagaddi, S., Patil, N. & Honnamude, N. (2020).** Effectiveness of audio assisted teaching programme on healthy life style activities among visually impaired children of selected blind school at Vijayapura. *Int J Health Sci Res, 10(5)*, 79-84.
18. **Ordinioha, B., Babatunde, S., Anyiam, F., & Nwadiuto, I. (2022)**. A Comparative Study of Personal Hygiene in Public and Private Schools in an Urban Local Government Area of Rivers State. *Asian Journal of Medicine and Health*, 8-21.
19. **Özdemir, H., & Kılıç Uçar, A. (2022).** Determining the genital hygiene behaviours of visually impaired women. *British Journal of Visual Impairment*, 2 (6), 86-96.
20. **Poe, M., Viegas, R., & El-Osta, A. (2022).** *Empowering self-care*, 1st edition, chapter 1, Netherlands: International Pharmaceutical Federation (FIP).
21. **Pukhraj, K., Deol, R. & Kodi, M. (2021)**. Knowledge and Practices Regarding Personal Hygiene among Primary School Children. *J Comm Pub Health Nursing, 7(9),* 1-4.
22. **Saffari, M., Koenig, H. G., Pakpour, A. H., Sanaeinasab, H., Jahan, H. R., & Sehlo, M. G. (2014).** Personal hygiene among military personnel: developing and testing a self-administered scale. *Environmental health and preventive medicine*, *19*(2), 135-142.
23. **Sajjan, S. & Natekar, D. (2022).** Effect Of Audio Drama on Knowledge to Promote Personal Hygiene, Nutritional Status, Yoga and Exercise Among Visually Challenged Adolescents at Selected Blind School at Bagalkot. *IOSR Journal of Nursing and Health Science. 11(4)*, 37-43.
24. **Samantaray, K., Pradhan, R., Pahantasingh, S., Pradhan, J., (2020)**. Effect of audio drama on knowledge regarding personal hygiene practices among visually impaired adolescent girls in a selected blind school of Bhubaneswar, Odisha. *International Journal of Current Research*, *9(12)*, 62762-62764.
25. **Saraswathy, S. (2021)**. A study to Assess the Awareness of Personal Hygiene among School Age Children at Selected School, Amroha. *International Education Studies*, *12*(4), 125-128.
26. **Shenouda, M., Amany, A., & Mervat, E. (2018)**. Evaluation of personal hygiene among students with visual impairment at Al-Nour School for Blind: Ismailia City. *The Medical Journal of Cairo University*, *86*(6), 3187-3196.
27. **World Health Organization (WHO), (2020):** How to hand rub? Accessed on 2 October 2021.Available at https://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf