ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Nurses' Knowledge and Practice Regarding Care of Patients with Fluid and Electrolytes Imbalance Post Urinary Diversion

Abeer Ibraheem Ahmed (1); Baghdad Hussien Mahmoud (2); Ola Abdelwahab Abdallah Srour (3)

(1) Clinical Instructor of Medical Surgical Nursing, Faculty of Nursing – Helwan University,

(2,3) Assistant Professors of Medical Surgical Nursing, Faculty of Nursing – Helwan University.

Abstract

Background: Urinary diversion is a surgical procedure that reroutes the normal flow of urine due to a diseased or dysfunctional bladder. It is commonly performed when the bladder is removed due to cancer, trauma, congenital defects or neurogenic bladder dysfunction. **Aim:** This study aimed to assess nurses' knowledge and practice regarding care of patients with fluid and electrolytes imbalance post urinary diversion. **Design**: A descriptive exploratory research design was used to conduct the study. **Setting:** urology and surgical departments in El-Demerdash Hospital affiliated to Ain Shams University Hospitals**. Subject:** A **c**onvenient sample of 50 nurse. **Tools of data collection: 1st tool: Nurses' Structured Interview Questionnaire:** included two parts, **1st part:** Personal characteristics of the studied nurses, **2nd part:** Nurses` knowledge regarding care of patients with fluids and electrolytes imbalance post urinary diversion, **and 2nd tool:** Nurses' Observational checklist regarding care of patients with fluids and electrolytes imbalance post urinary diversion. **Results:** The study finding revealed that more than half of the studied nurses had a satisfactory knowledge and less than two-thirds of the studied nurses had a competent practice level regarding the care of patients with fluid and electrolyte imbalance post urinary diversion. **Conclusion:** The current study concluded that there was a highly statistically significant positive correlation between the total level of knowledge and total practice level among the studied nurses regarding the care of patients with fluid and electrolyte imbalance post-urinary diversion. **Recommendations**: Updating for nurse's knowledge and practice through carrying out continuing educational programs about caring of patients with fluid and electrolytes imbalance post urinary diversion.

Keywords: Fluid and Electrolytes Imbalance, Urinary diversion.

Introduction

Urinary diversion (UD)is a surgical procedure that redirects the path of urine excretion, creating an alternative route. This procedure can be temporary or permanent and involves creating a stoma, typically from the ureters. Stomas are most commonly employed in older adults with conditions such as bladder cancer, congenital bladder defects, and unreparable birth defects. Traumatic injuries to the bladder can also necessitate urinary diversion (***El-Masry and Al-Ghamdi, 2023).***

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Nurses must monitor patients closely for complications such as infections, leakage, or stoma-related issues. Assessment of urinary output, skin integrity around the stoma, and signs of infection is critical. Nurses also play a key role in managing the care of stoma sites, which includes daily cleaning, applying protective barriers, and ensuring the use of appropriate appliances to avoid complications such as skin breakdown ***(Carter & Beber, 2022).***

Significance of the study

Although bladder cancer is considered the ninth most common cancer all over the world, its incidence differs greatly across different countries in the world. It is generally more prevalent in the developed compared to developing countries, however, some areas are considered exceptions. The Middle East, Egypt, Iraq, and southern parts of Saudi Arabia, have a relatively high incidence rate. Bladder cancer is considered the most common solid tumor in Egyptian men and second only to breast cancer in Egyptian women ***(Muter,2022).***

In 2018, there were about 550,000 new cases of bladder cancer (BC) worldwide, and bladder cancer accounted about 200,000 deaths ***(Bray et al.,2018).*** In Egypt, BC has the highest incidence rate in the world. An incidence of 37.1 per 100,000 males is almost two times higher than that in western communities. The National Cancer Institute (NCI) reported that, it constitutes 30.3% of all cancers, 16% of male cancers, and 14.3% of female cancers ***(Salah et al.,2020).*** At EL-Demerdash hospital in 2022-2023 the patients who had performed urinary diversion was 150 patients ***(Medical Health Statistical Records, 2022).***

The complications associated with urinary diversion are both acute and chronic. One of the most common metabolic consequences and complications are fluid and electrolyte imbalances that affect the patient's hemodynamic stability. It is essential that urologic nurses should be aware of these abnormalities, blood electrolytes and acid-base status should be closely monitored for several months following surgery for the early detection of potential life-threatening metabolic abnormalities, implement appropriate correct recording, accurate calculation and fluid balance monitoring ***(Mohamed et al., 2021).*** So that, this study will be carried out in an attempt to help in assessing nurses' knowledge and practice regarding care of patients with fluid and electrolytes imbalance post urinary diversion.

Aim of the study

1- Assess the nurses' level of knowledge regarding care of patients with fluid and electrolytes imbalance post urinary diversion.

2- Assess the nurses' level of practice regarding care of patients with fluid and electrolytes imbalance post urinary diversion.

Research questions:

1- What is the level of nurses' knowledge regarding care of patients with fluid and electrolytes imbalance post urinary diversion?

2- What is the level of nurses' practice regarding care of patients with fluid and electrolytes imbalance post urinary diversion?

Subjects and method

The subject and methods used in carrying out the present study were presented under the following four main designs:

I. Technical item. II. Operational item.
III. Administrative item. IV. Statistical item.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

I. Technical item:

The technical item involved a description of the research design, setting, subjects of the study, and tools of data collection.

Research design:

A descriptive research design was used in this study.

Setting:

The study was conducted in urology and surgical departments in El-Demerdash Hospital affiliated to Ain Shams University Hospitals. The urology departments located in second and third floor. Each department consisted of 9 rooms and it contain 32 beds. The surgical departments are called surgical 5 and surgical 10 they are located in the second floor. Finally, the surgical 5 contain 11 rooms and 23 beds. The surgical 10 contain 7 rooms and 18 beds.

Sampling:

Type of the sample: A convenience sample of all available nurses (50) nurse from both gender who are working in the above-mentioned setting and agreed to participate in the study.

Tools for data collection:

Data were collected through using the following two tools to achieve the aim of the study:

Tool I: Nurses' Structured Interview Questionnaire -

This tool was adapted from ***(Mohamed et al., 2021)*** It aimed to assess nurses' knowledge regarding fluid and electrolytes imbalance post urinary diversion. It included the following two parts.

Part (1): Personal characteristics of the studied nurses:

It was used to assess personal characteristics and it consisted from (7) items including age, gender, marital status, educational level, position, years of experience in urology department and training courses.

Part (2): Nurses` knowledge regarding care of patients with fluids and electrolytes imbalance post urinary diversion.

It was used to assess nurses' knowledge regarding care of patients with fluids and electrolytes imbalance post urinary diversion, and included four different sections. The first section about nurse's knowledge about urinary diversion that contained (16) items, the second section included nursing care for patient post urinary diversion and consisted of (14) items, The third section about fluid and electrolyte balance and included (14) items, and the fourth section about causes and manifestation of fluid and electrolyte imbalance which consisted of (10) items. Total items were 54 items.

Scoring system for knowledge items

The score is distributed as one grade for each correct answer and zero for each incorrect answer, the total grade was 54 grades. The total score is converted into a percentage. knowledge was considered an unsatisfactory level of knowledge if the total percent score was below 75% and a satisfactory level of knowledge if the total percent score was equal or above ≥75% (14 grade).

Tool II: Nurses' Observational checklists regarding care of patients with fluids and electrolytes imbalance post urinary diversion:

This tool was adopted from ***(Lynn and Lebon., 2011), (Doyle and Mccutcheon., 2012), and (Perry et al., 2017).*** It aimed to assess nurses' practices during caring for patients with fluid and electrolytes imbalance post urinary diversion. It consisted of the following:

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

1- Vital signs check list: Aimed to assess the patients' vital signs including oral temp, radial pulse, assessing respiration and Bp measurement. The vital signs checklist consisted of 3 main sections including before procedure, During procedure and post procedure.

The number of steps before procedure was 5 steps.

The number of steps during procedure was 36 steps divided into (12) steps for oral temp procedure, (4) steps for assessing pulse, (4) steps for assessing respiration, (16) steps for Bp measurement.

The number of steps post procedure was 2 steps.

2- Intake and output measurement post urinary diversion check list: Aimed to assess the intake and output measurement post urinary diversion. This checklist consisted of (22) steps and was divided into general preparation before procedure (5) steps, procedure (11) steps, and post-procedure (6) steps.

3-Nursing care for stoma and change urinary bag check list: Aimed to assess the nursing care for stoma and change the urinary bag. This checklist consisted of (19) steps and was divided into general preparation (4) steps, procedure (12) steps, and post-procedure (3) steps.

Scoring system: The score is distributed as one grade for each step done correctly, and zero for not done. the total score is converted into percentages. Practice was considered competent if the percent score was ≥75% and incompetent if it was <75% based on statistical analysis.

II. Operational item:

Included preparatory phase, content validity and reliability, pilot study and field work.

A- The preparatory phase:

This phase started with a review of current and past, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection. During this phase, the investigator also visited the selected place to get acquainted with the personnel and the setting. The development of the tools was done under the supervisors' guidance and experts' opinions were be considered.

B-Tool's Validity and Reliability.

Validity:

Validity was tested by a jury of five experts (three assist professor, and two lecturer) from medical surgical nursing department staff at the Faculty of Nursing, Helwan University. The experts reviewed the tools for clarity, relevant, comprehensiveness, simplicity and applicability, accuracy, and clarity in language. Based on their recommendations, correction, addition, and omission of some items and minor modifications were done.

Reliability:

Cronbach's Alpha was used to determine the internal reliability of the tools.

Is the consistency of measuring instrument. It is a degree to which the used tools measure was supposed to be measured with the same way each time & under the same condition with the same subjects. ***(Middleton et al., 2023)*** The tools were reliable as nurses' knowledge questionnaire was 0.887 and nurses' observational chick lists were 0.915.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

C-Pilot study:

A pilot study was conducted on five staff nurses representing 10% (5nurses) of the total study nurses were selected randomly. The pilot study aimed to examine the clarity of language, and applicability of the tools, and to test the feasibility and suitability of the tools. It also served to estimate the time needed to complete the questionnaires by each study nurse and identify potential obstacles and problems that may be encountered during data collection. Data obtained from the pilot study was analyzed and modifications were made to the questionnaires and didn't interfere with the structures of data collection tools. The study sample in the pilot was included in the main study sample.

D-Field work

- The investigator introduced herself to all participants, explained the aim of the study to them, informed all participants that their information will be treated confidentially and will be used only for the purpose of the research. The investigator notified all participants that they have the right to accept or refuse to participate in the study. The investigator informed all participants that they have the right to withdraw from the study at any time.
- The investigator obtained approval from the director of Ain Shams University hospitals and EL Demerdash hospital to collect the data.
- Date was collected and completed within 4months.The investigator started date collection at the beginning of February 2024 after securing the official approvals for conducting the study to the end of May 2024 the study was conducted in the Urology and Surgical departments in EL Demerdash hospital.
- The investigator was visited hospital to collect data for 2 days/week at morning shift and afternoon shift. The investigator first explained the aim of the study to the staff nurses and reassured them that the information collected was treated confidentiality and was used only for the study.
- Nurses structured interview questionnaire took around 20-30 minutes to fill in and completed.
- Direct and indirect observation for each nurse was done to filled in and complete the check list that assess nurses practice regarding care of patient with fluid and electrolytes imbalance post urinary diversion it took around 20-35 minutes

II. Administrative item:

Before starting the study, an official letter was issued from the Dean of the Faculty of Nursing, at Helwan University to the director of nursing at Ain Shams University Hospitals to facilitate the collection of data. Based on this official letter, the director of nursing informed the head nurses of the Urology and Surgical 5 departments to facilitate the process of collecting data from staff nurses. The letter explained the aim of the study to facilitate the data collection phase.

Ethical Considerations:

Before conducting the study, ethical approval was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing, Helwan University. The subjects were informed about their rights to withdraw at any time without giving any reason and the collected data was kept confidential and used for scientific work only. informed consent was obtained from each studied nurses in the study.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

IV. Statistical item:

Data was computed and analyzed using Statistical Package for the Social Science (SPSS), version 24 for analysis. The P value was set at 0.05. Descriptive statistics tests included numbers, percentage, mean ± standard deviation (± SD), was be used to describe the results, The correlation between variables was evaluated using Pearson's correlation (r) and chi-square test ($\mathbf{X^2}$) for comparison between two or more groups.

Results:

Table (1) indicates that 40% of the studied nurses were 30 < 40 years old with a mean age year (35±8.06) and 74%-70% of the studied nurses were females and married. Also, 40% had a technical institute of nursing. In addition to 56%-58% of studied nurses attended training courses about urinary diversion and fluids and electrolytes respectively. Also, 80% of the studied nurses had staff nurse's position. While 42% of nurses had less than 10 years of experience in the Urology department.

Figure (1) shows that 58% of the studied nurses had a satisfactory level of knowledge regarding care of patients with fluid and electrolyte imbalance post urinary diversion. While 42% of the studied nurses had unsatisfactory levels regarding care of patients with fluid and electrolyte imbalance post urinary diversion.

Figure (2) indicates that 64% of the studied nurses had a competent practice level regarding the care of patients with fluid and electrolyte imbalance post urinary diversion. While 36% of them had incompetent practice.

Table (2) presents that there were a highly statistically significant relations between total knowledge level and the studied nurses' years of experience in in Urology department, attending training courses regarding urinary diversion and fluids and electrolytes imbalance at (P< 0.01). There was a statistically significant relation with age, and educational level at (p< 0.05).

Table (3) presents that there were a highly statistically significant relations between total practice level and nurses' age, educational level, and years of experience in Urology department, attending training courses about urinary diversion and fluids and electrolytes imbalance at (P < 0.01).

Table (4) presents that there was a highly statistically significant positive correlation between the total level of knowledge and total practice level among studied nurses regarding the care of patients with fluid and electrolyte imbalance post-urinary diversion. (P< 0.01).

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Table (1): Frequency and percentage distribution of personal characteristics among the studied nurses (n=50).

Nurses' personal characteristics	Items	N	%
Age (year)	20 < 30 years	15	30
	30 < 40 years	20	**40**
	40 < 50 years	10	20
	50 ≤ 60 years	5	10
Mean±SD	**35±8.06**		
Gender	Male	13	26
	Female	37	**74**
Marital status	Single	10	20
	Married	35	**70**
	Divorced	3	6
	Widow	2	4
Educational level	School of nursing	12	24
	Technical Institute of nursing	20	**40**
	Bachelor in Nursing science	15	30
	Post graduate study	3	6
years of experience in Urology department	1 < 5 years	13	26
	5 < 10 years	21	**42**
	10< 15 years	12	24
	≥ 15 years	4	8
Attend training courses about urinary diversion	Yes	28	56
	No	22	44
Attend training courses about fluids and electrolytes imbalance	Yes	29	58
	No	21	42
Nurses position	Staff nurse	40	80.0
	Head nurse	2	4.0
	Charge nurse	5	10
	Nursing supervisor	3	6

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

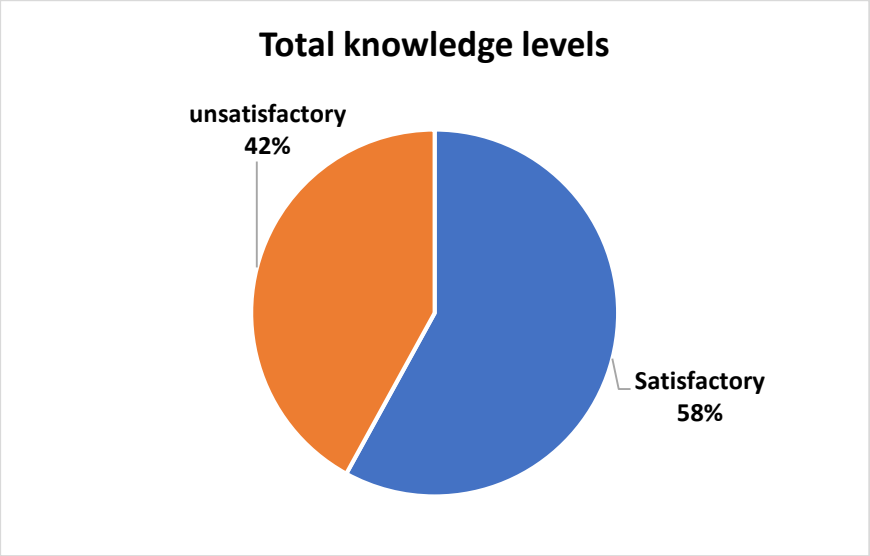

Figure (1): Total knowledge among the studied nurses' regarding care of patients with fluid and electrolytes imbalance post urinary diversion (n=50)

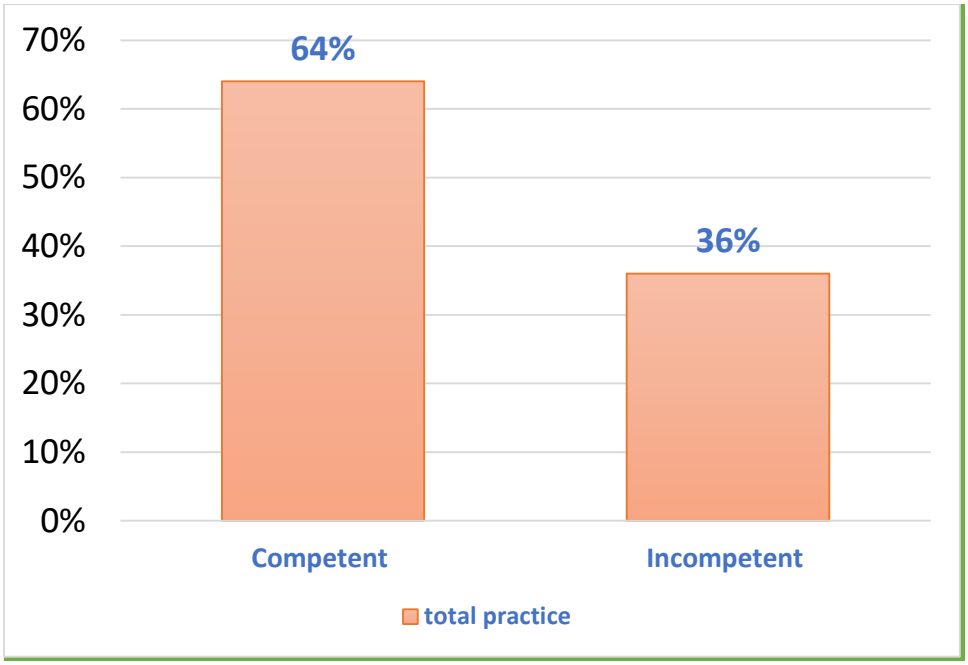

Figure (2): Total practice of the studied nurses' regarding care of patients with fluid and electrolytes imbalance post urinary diversion (n=50)

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Table (2): Relations between total knowledge level and nurses' personal characteristics (n=50).

Personal characteristics		Total knowledge levels						X^2	P-Value
		Total		Satisfactory		Unsatisfactory			
		No	%	No	%	No	%		
Age	20 < 30 years	15	30	4	8	11	22	10.660	0.014*
	30 < 40 years	20	40	13	26	7	14		
	40 < 50 years	10	20	9	18	1	2		
	50 ≤ 60 years	5	10	3	6	2	4		
Gender	Male	13	26	7	14	6	12	0.124	0.724
	Female	37	74	22	44	15	30		
Marital status	Single	10	20	7	14	3	6	1.404	0.705
	Married	35	70	20	40	15	30		
	Divorced	3	6	1	2	2	4		
	Widow	2	4	1	2	1	2		
Educational level	School of nursing	12	24	3	6	9	18	8.744	0.033*
	Technical Institute of nursing	20	40	14	28	6	12		
	Bachelor in Nursing science	15	30	9	18	6	12		
	Post graduate study	3	6	3	6	-	-		
years of experience in in Urology department	1 < 5 years	13	26	3	6	10	20	11.840	0.00**
	5 < 10 years	21	42	17	34	4	8		
	10< 15 years	12	24	8	16	4	8		
	≥ 15 years	4	8	4	8	-	-		
Attend training courses about urinary diversion	Yes	28	56	23	46	5	10	15.227	0.00**
	No	22	44	6	12	16	32		
Attend training courses about fluids and electrolytes imbalance	Yes	29	58	25	50	4	8	22.553	0.00**
	No	21	42	4	8	17	34		
Nurses position	Staff nurse	40	80	22	44	18	36	4.433	0.218
	Head nurse	2	4	2	4	-	-		
	Charge nurse	5	10	2	4	3	6		
	Nursing supervisor	3	6	3	6	-	-		

(**) highly statistically significant at P <0.01, (*) statistically significant at P <0.05

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Table (3): Relations between total practice level and nurses' personal characteristics (n=50).

Personal Characteristics		Total practice levels							
		Total		Competent		Incompetent		X^2	P-Value
		No	%	No	%	No	%		
Age	20 < 30 years	15	30	6	12	9	18	12.891	0.00**
	30 < 40 years	20	40	11	22	9	18		
	40 < 50 years	10	20	10	20	-	-		
	50 ≤ 60 years	5	10	5	10	-	-		
Gender	Male	13	26	7	14	6	12	0.786	0.504
	Female	37	74	25	50	12	24		
Marital status	Single	10	20	8	12	2	4	1.534	0.675
	Married	35	70	21	42	14	28		
	Divorced	3	6	2	4	1	2		
	Widow	2	4	1	2	1	2		
Educational level	School of nursing	12	24	3	6	9	18	11.589	0.00**
	Technical Institute of nursing	20	40	14	28	6	12		
	Bachelor in Nursing science	15	30	12	24	3	6		
	Post graduate study	3	6	3	6	-	-		
years of experience in in Urology department	1 < 5 years	13	26	3	6	10	20	14.356	0.00**
	5 < 10 years	21	42	17	34	4	8		
	10< 15 years	12	24	6	12	6	12		
	≥ 15 years	4	8	3	6	1	2		
Attend training courses about urinary diversion	Yes	28	56	28	56	-	-	35.795	0.00**
	No	22	44	4	8	18	36		
Attend training courses about fluids and electrolytes imbalance	Yes	29	58	29	58	-	-	38.839	0.00**
	No	21	42	3	6	18	36		
Nurses position	Staff nurse	40	80	22	44	18	36	7.031	.071
	Head nurse	2	4.0	2	4	-	-		
	Charge nurse	5	10	5	10	-	-		
	Nursing supervisor	3	6	3	6	-	-		

(**) highly statistically significant at P <0.01, (*) statistically significant at P <0.05.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Table (4): Correlation between total level of knowledge and total practices level among the studied nurses regarding care of patients with fluid and electrolytes imbalance post urinary diversion

Correlation	Total level of knowledge	
	r	P
Total practice levels	**0.628**	**0.000 ****

(**) highly statistically significant

Discussion

Urinary diversion is a surgical procedure that reroutes the normal flow of urine from the kidneys to an alternative exit pathway, bypassing the bladder and urethra. This intervention becomes necessary when the bladder is either non-functional or has been surgically removed due to conditions such as bladder cancer, severe trauma, congenital abnormalities, or chronic infections ***(National Institute of Diabetes and Digestive and Kidney Diseases,2024).***

Part I: Demographic characteristics of the studied nurse's:

Concerning the description of age among studied nurses. The present study findings revealed that less than two-fifths of the studied nurses were age 30 < 40 years old with mean age (35±8.06). From the investigator point of view, most of the studied nurses are staff nurses who are more responsive to patients and give patients proper nursing care. this study finding was consistent with a study conducted in Egypt by (***Mohamed et al., 2021)*** which revealed more than three-quarters of the studied nurses aged between 30 < 40 years.

Regarding the gender and marital status among the studied nurses. The present study findings revealed that less than three-quarters of the studied nurses were females and married. This study finding was in agreement with a study conducted in Malaysia by (***Mailani et al.,2021)*** who revealed that half of the studied nurses were females while the same study was in consisted with the present study result in relation to marital status which stated that as more than half of studied nurses were unmarried.

Concerning educational level among the studied nurses. The Present study findings showed that more than two-fifths of the studied nurses had a technical institute of nursing. From the investigator point of view, this may be due to the current condition of nursing qualification for bachelor nursing work as an administrator more than a practitioner. This study finding was consistent with a study conducted in Egypt by ***(Mohamed et al., 2021)*** who stated that more than half of the studied nurses had a diploma of nursing.

As Regard attending training courses about urinary diversion among studied nurses. The Present findings showed that more than half of the studied nurses attend training courses about urinary diversion. This may be due to the hospital policies that regulate the continuous training courses for nurses who work in the urology department. This study finding was consistent with a study conducted in Egypt by (***Leilah et al., 2020)*** who revealed that the majority of the studied nurses had previously attended training program about fluid and electrolyte. while the same study revealed that less than one-third of the studied nurses had previously attended training courses about urinary diversion.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Part II: Regarding to nurse's total level of knowledge:

Concerning total satisfactory knowledge levels among the studied nurses regarding care of patients with fluid and electrolytes imbalance post urinary diversion dimensions. The present study showed that more than two-thirds of the studied nurses had a satisfactory level regarding nurses' knowledge about the causes and manifestations of fluid and electrolyte imbalance in patients with urinary diversion. the nurses' knowledge in this urology department might be resulted from their continuous refreshment of knowledge. This finding was inconsistent with a study conducted in Egypt by ***(Mohamed et al.,2021)*** who revealed that more than three-quarters of the studied nurses had an unsatisfactory level of knowledge.

Concerning total satisfactory knowledge levels among the studied nurses regarding the care of patients with fluid and electrolytes imbalance post urinary diversion dimensions. The present study showed that less than half of the studied nurses had unsatisfactory levels regarding nurses` knowledge regarding urinary diversion. This finding was inconsistent with a study conducted in Egypt by ***Hassanein et al., (2020)*** who revealed that more than three-quarters of the studied nurses had a satisfactory level of knowledge.

Part III: Regarding to nurses' total level of practice

In the light of total practice levels among nurses' regarding care of patients with fluid and electrolytes imbalance post urinary diversion dimensions. The current study findings presented that more than two-thirds of the studied nurses had a competent level regarding intake and output measurement post urinary diversion. From investigator point of view, this may be due to essential post urinary diversion care is measuring intake and output so, nurses had competent practice. The study finding was in agreement with a study conducted in Egypt by ***(Hosny et al.,2022)*** who presented that two-thirds of the studied nurses had a competent level regarding intake and output measurement.

Concerning total practice levels among nurses' regarding care of patients with fluid and electrolytes imbalance post urinary diversion dimensions. The current study findings presented that more than one-thirds of studied nurses had incompetent levels regarding the vital signs measurement. This may be due to the high patient-to-nurse ratio can lead to rushed assessments, which might compromise the accuracy of vital sign measurements. The study finding was in agreement with a study conducted in Egypt by ***(Elsayed& Saad ,2022)*** presented that the majority of the studied nurses had an incompetent level regarding the vital signs measurement before training program.

Regarding total practice levels among the studied nurses' level of practice regarding care of patients with fluid and electrolytes imbalance post urinary diversion. The current study indicated that less than two-thirds of the studied nurses had a competent practice level regarding the care of patients with fluid and electrolyte imbalance post urinary diversion. This may be due to hands-on experience in various clinical settings helps nurses develop the skills needed to recognize and manage fluid and electrolyte imbalances effectively. This includes interpreting lab results, monitoring patient symptoms, and adjusting care plans accordingly. The study finding was consistent with a study conducted in Egypt by ***(Mahmoud et al., 2023)*** who revealed that less than two-thirds of nurses had competent practice regarding the care of patients with fluid and electrolyte imbalance. In addition, ***(Hosny et al., 2022)*** who presented that near of two thirds of nurses had adequate practice regarding the care of patients with fluid and electrolyte imbalance.

Part IV: Relations and correlations between the studied variables

Regarding to relations between total knowledge level and nurses' personal characteristics.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Concerning relation between total knowledge level and nurses' personal characteristics. The current study findings presented that there were a statistically significant relations between total knowledge level and studied nurses' age and educational level. From investigator point of view, this may be due to nurses gain more years of experience, they encounter a wide variety of clinical situations. This exposure helps the studied nurses to develop a deeper understanding of patient care. This study finding was consistent with a study conducted in Egypt by ***(Mohamed et al.,2021)*** who revealed that there were statistically significant relations between total knowledge level and studied nurses' years of experience and age.

The current study findings presented that there were a highly statistically significant relations between total knowledge level and years of experience, attending training courses about urinary diversion, attending training courses about fluids and electrolytes imbalance. This may be due to attending continuing nursing education courses and training programs have the benefits of keeping nurses up-to-date and refining their practices. The study findings were in agreement with a study conducted in Egypt by ***(Mahmoud et al.,2023)*** who revealed that there were a highly statistically significant relations between total knowledge level and attending training courses. While the study finding was in disagreement with a study conducted in Egypt by ***(Hassan et al., 2021)*** who studied presented that there were no relations between total knowledge level and nurses' personal characteristics.

Regarding to total practice level and nurses' personal characteristics.

In relation to total practice level and nurses' personal characteristics. The present study indicated that there were a highly statistically significant relations between total practice level and nurses' age, and years of experience in Urology department, attending training courses about urinary diversion and fluids and electrolytes imbalance. From investigator point of view, this may be due to nurses became competent and experience, their ability to provide high-quality care improves. Experienced nurses are better at recognizing subtle changes in patients' conditions, making informed decisions quickly, and providing effective interventions. The study finding was consistent with a study conducted in Egypt by ***(Hosny et al., 2022)*** who reported that there was a statically relation between total practice regarding fluids and electrolytes imbalance and nurses' age, and years of experience, attending training courses.

The present study indicated that there were a highly statistically significant relations between total practice level and nurses' educational level. This may be due to nurses with higher educational levels are often better prepared to handle complex clinical situations. They tend to have higher skills in areas like evidence-based practice, healthcare policy, and interprofessional collaboration. The study finding was in agreement with a study conducted in Egypt by ***(Hassan et al., 2021)*** who presented that there were a statistically significant relations between total practice level and nurses' educational level.

Regarding to correlation between total level of knowledge and total level of practice among the studied nurses:

As regards correlation between total level of knowledge and total practice level among the studied nurses regarding care of patients with fluid and electrolytes imbalance post urinary diversion. The current study findings showed that there was a highly statistically significant positive correlation between the total level of knowledge and total practice level among studied nurses regarding the care of patients with fluid and electrolyte imbalance post-urinary diversion.

From investigator point of view, this may be due to nurses with a higher level of knowledge about fluid and electrolyte balance are better equipped to apply this knowledge in clinical practice. Increased knowledge boosts

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

nurses' confidence in their abilities, leading to more competent and proactive care. This study finding was consistent with a study conducted in Egypt by ***(Mohamed et al., 2021)*** who revealed that there was positive correlation between the total level of knowledge and total practice level among studied nurses regarding the care of patients with fluid and electrolyte imbalance post-urinary diversion.The study finding was in disagreement with a study conducted in Egypt by ***(Hassan et al., 2021)*** who reported that there was negative correlation between the total level of knowledge and total practice level among studied nurses regarding the care of patients with fluid and electrolyte imbalance.

Conclusion

Based on finding of the present study, it can be concluded that:

The present study showed that more than half of the studied nurses had a satisfactory level of total knowledge levels regarding care of patients with fluid and electrolyte imbalance post urinary diversion. While less than half of them had an unsatisfactory knowledge level. Also showed that less than two-thirds of the studied nurses had a competent practice level regarding the care of patients with fluid and electrolyte imbalance post urinary diversion. while more than one third of them had incompetent practice level. Additionally, there was a highly significant positive correlation between the total level of knowledge and total practice level among studied nurses regarding the care of patients with fluid and electrolyte imbalance post-urinary diversion.

Recommendations

Based on finding of the present study, the following are recommended:

1) Updating for nurse's knowledge and practice through carrying out continuing educational programs about caring of patients with fluid and electrolytes imbalance post urinary diversion.
2) Providing the nurses with periodic training session to improve their practices regarding caring the patients with urinary diversion.
3) Availability of written guidelines and posters about caring of stoma.
4) Offer checklist for the nurses to be follow during the patient care.

Recommendation for further research:

1) Replication of the study on a larger probability subjects from different geographical locations in Egypt.
2) Design instructional model in Arabic booklet to be readily accessible for nurses with the comprehensive knowledge about caring of the patients with urinary diversion.

References

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R., Torre, L., & Jemal, A. (2018): Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: a cancer journal for clinicians, 68(6), 394-424.

Carter, H., & Beber, B. (2022). Postoperative stoma care for urinary diversions. *Journal of Wound, Ostomy, and Continence Nursing*, *49*(1), 65–72. https://doi.org/10.1097/WON.0000000000000839

Doyle G & Mccutcheon J. (2012): Tubes and Attachments, Clinical Procedures for Safer Patient Care, 3th Ed, British Columbia Ministry of Advanced Education, 2012: P88.

El-Masry, F., & Al-Ghamdi, A., (2023). Empowering patients: educational interventions for enhanced knowledge and practice in urinary diversion. Contemporary journal of nursing and allied research, 11(3), 1-17.

Elsayed, E., & Saad, N. (2022). Effect of Hybrid Educational program on Nurses' Performance regarding Caring of Patients with Fluid and Electrolytes Imbalance in Critical Care Units. International Egyptian Journal of Nursing Sciences and Research, 2(2), 260–0. https://doi.org/10.21608/ejnsr.2021.102372.1111

Hassan, H. M. A., El-sayed, E. E., Mohammad, S. Y., & Sobeh, D. E. T. S. (2021). Effect of Applying Guidelines on Nurses `Performance regarding Fluid and Electrolyte Imbalance. Port Said Scientific Journal of Nursing, 8(2), 14–15.

Hassanein, E. H., El-Hawary, M. A., Abdel-Aziz, M. A., & Mehany, M. M. (2020). Effect of designing Educational Program on Nurses` Performance for Immediate care of post cystectomy Patients at Intensive Care Unit

Hosny, A., Sherief, W. I., & Mohamed, M. H. N. (2022). Assessment of Nurses' knowledge and Performance Regarding Fluid and Electrolyte Management for Cardiac Surgery Patients. Mansoura Nursing Journal, 9(1), 8.

Leilah, M. A. G., Kandeel, N. A., Shebl, A. M., & Mansour, H. E. (2020). *Developing Nursing Standards for Maintaining Fluid and Electrolyte Balance for Critically Ill Patients in Intensive Care Units. In Journal of Intensive and Critical Care (Vol. 05, Issue 01). https://doi.org/10.21767/2471-8505.100123*

Lynn P & Lebon M. (2011): Vital Signs: in Taylors Clinical Nursing Skills Book, Wolters KluHunter, D., McCallum, J., & Howes, D. (2019). Defining exploratory-descriptive qualitative (EDQ) research and considering its application to healthcare. Journal of Nursing and Health Care, 4(1).wer Health, Lippincott Williams & Wilkins, USA, 3th Ed, 2011: Pp 1-11.

Mahmoud, F. H., Ammar, S. A., & Mohamed, A. S. M. (2023). assessment of nurses' knowledge and practice regarding fluids and electrolyte imbalance in critical care units electrolytes imbalance among critically ill patients. journal of survey in fisheries sciences, 10(3s), 4257–4266**.**

Mailani, F., Muthia, R., Herien, Y., Huriani, E., Chan, C. M., & Abdullah, K. L. (2021). ORIGINAL RESEARCH The Fluid Management Experience in Patients with Chronic Kidney Disease Undergoing Hemodialysis in Indonesia: A Qualitative Study. In Nurse Media Journal of Nursing (Vol. 11, Issue 3, pp. 389–403). https://doi.org/10.14710/nmjn.v11i3.38838

Medical Health Statistical Records (2022).in El-Demerdash hospital affiliated to Ain Shams University Hospital.

Middleton, H., Grimes, L., Willis, S. C., Steinke, D., & Shaw, M. (2023). Reliability and validity testing of the medicines related-consultation assessment tool for assessing pharmacists' consultations. International journal of clinical pharmacy, 45(1), 201-209.

ISSN 2786-0183
Helwan International Journal for Nursing Research and Pratctice
Vol. 4, Issue 10, Month: June 2025, Available at: https://hijnrp.journals.ekb.eg/

Mohamed, S., Taha, N., & Bayomi, R. (2021): Nurses' Role Regarding Care of Patients with Fluid and Electrolyte Imbalance Undergoing Urinary Diversion. Zagazig Nursing Journal, 17(1), 55-65.

Muter, S. (2022): Time-Trend Analysis of Bladder Cancer and its Association with Bilhariziasis in Egypt. Al-Kindy College Medical Journal, 18(1), 5-9.

National Institute of Diabetes and Digestive and Kidney Diseases (U.S.). Urinary Diversion (https://www.niddk.nih.gov/health-information/urologic-diseases/urinary-diversion). Last reviewed 6/2020. Accessed 7/22/2024.

Perry, A., Ostendorf, W., & Potter, P. (2017): Skill Performance Checklist for Clinical Nursing Skill and Techniques In: Health Assessment Book. 9th Ed, Mosby, USA, P88.

Salah, E., Ali, A., & Elkhateb, M. (2020): Quality of Life in Patients with Continent Urinary Diversion after Radical Cystectomy in Upper Egypt. The Egyptian Journal of Hospital Medicine, 78(2), 294-297.