Professional Nursing Value and Problem Solving Ability among Nurse Interns

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Abstract

Background: Professional nursing value and problem-solving ability are crucial attributes among nurse interns, are deeply interconnected, each reinforcing and enhancing as they directly impact patient care, team dynamics, and overall healthcare outcomes. **Aim of the study**: To assess professional nursing value and problem solving ability among nurse interns. **Subjects and Methods; Research design:** A descriptive research design was carried out in this study. **Setting:** The present study was conducted at Zagazig University Hospitals. **Subjects:** Stratified random sample was selected from nurse interns (n= 244). **Tools of data collection:** Two tools were used for collecting data. Tool (I): Professional nursing value scale. Tool (II): Problem solving ability inventory. **Results:** Less than half of nurse interns (41.8% & 46.1%) had a high level of professional nursing value and a high level of problem solving ability. **Conclusion:** There is statistical significant correlation professional nursing value and problem solving ability. **Recommendations:** Conduct a continuously training program for nurse interns to improve their professional values perception, learning how to apply problem solving skills in their practical life, and developing training and educational programs for nurse interns to enhance their problem solving and learning how to apply problem solving skills in their practical life.

Key words: Professional Nursing Value, Problem Solving Ability, Nurse Interns.

Introduction:

Nurse interns are baccalaureate student nurses who is defined as inexperienced nurses who may have or have not passed their licensure exam for nurses. The nurse interns must be an individual who has intentional professional goals and reflects actively on what they are accomplishing throughout the experience, The term intern refers to a nurse in the “first stage of their career, recently graduated from university and between the transitional phase of student and qualified nurse and they are integral part of the health care system [(1)].

Internship program aims to determine and enhance the nurse intern professional role and responsibilities in contemporary health care practice that is based upon professional values, legal and ethical principles, regulatory guidelines, and professional standards. It also utilizes the basic concepts of time management, prioritization of patient care, critical thinking and problem solving ability of nurse interns. It is critical for nurse interns to internalize professional values in order to develop and sustain a career identity in a time of increasing ethical dilemmas [(2)].

Nursing values are the principles and standards that nurse interns follow to ensure they're doing ethical, quality work. Many nurse interns and nursing organizations share values with a commitment to respecting their patients and providing excellent comfort, support and treatment through every area of healthcare. Nurse interns who share these values

with their healthcare team may work together more effectively to care for their patients [3].

Value can be defined as goals and beliefs that establish a behavior and provide a basis for decision making. In a profession, values are standards for action that are preferred by experts and professional groups and establish frameworks for evaluating behavior. Professional nursing values are defined as important professional nursing principles of human dignity, integrity, altruism, and justice that serve as a framework for standards, professional practice, and evaluation [4].

Professional nursing values are demonstrated in ethical codes. In fact, ethical codes clarify nursing profession practices, the quality of professional care, and professional norms. With the ever-increasing number and complexity of ethical dilemmas in care settings, promotion of professional values has become more crucial in nursing profession. The acquisition and internalization of values are at the center of promoting the nursing profession. When values are internalized, they will become the standards in practice and guide behavior. Values can be taught, modified and promoted directly or indirectly through education [5].

Professional nursing values are crucial for nurse interns, as they shape their attitudes, behaviors, and decision-making in their roles as healthcare providers. These values form the framework for ensuring that the decisions and solutions implemented align with the best interests of the patient and abide by professional and ethical standards [6].

Nurse interns during internship program work in a highly complex and unpredictable environment, where they face changes in patients' needs and work circumstances. They must retain adequate problem-solving abilities to determine the most suitable resolutions to the stressful situations they experience through their day-to-day work .Problem-solving is a critical part of the nursing daily working duties. When encountering a problem, nurse interns have to apply their intellectual and cognitive abilities to examine and recognize the situation and construct a proposed solution supported by evidence [7].

Problem-solving ability is an intellectual process of the brain, which explores the explanation to a specified problem or discovers a technique to comprehend the given goal. Problem solving is the process of articulating solutions to problems. Alternatively, it is “the act of transforming a situation into an updated configuration of meaning that satisfies some intention [8].

There are various important of problem-solving ability in the workplace to nurse interns such as: Develop intuition power, increase brainstorming ability, boost up forecasting senses, help the organization out of the problem, make the impossible possible, increase trust and credibility , makes you stand out, propose Solutions, develop decision making ability, Self-development, develop as a challenge taker, implementation of solution, increased confidence, more career opportunities, save resources and lastly avoid the loss [9].

Significance of the study:

Professional nursing value and problem-solving ability among nurse interns is vital in promoting their professional growth and development. It equips them with the necessary skills, knowledge, and values to provide high-quality care, navigate complex situations, and lead fulfilling and successful careers in nursing. A lack of professional nursing value has been found to have a significant impact on a profession’s perceived value and on a nurse intern’s confidence in advocating for their professional opinions. These difficulties also influence in their confidence to instill appropriate

professional knowledge, values and problem solving ability level. Further, can lead to larger issues within a profession in which practice become less paradigm-specific and increasingly focused on roles that 'fill gaps' of other profession [10]. Therefore, this study was carried out in attempt to assess professional nursing value and problem solving ability among nurse interns.

Aim of the study:

The study was conducted to assess professional nursing value and problem solving ability among nurse interns.

Research Questions:

- What is the level of professional nursing value among nurse interns?
- What is the level of problem solving ability among nurse interns?
- Is there a relationship between professional nursing value and problem solving ability among nurse interns?

Subjects and Method:

Research design:

A descriptive design was used.

Study setting:

The present study was conducted at Zagazig University Hospitals, Al-sharqia Governorate, Egypt, which include two sectors, namely; the Emergency sector includes four hospitals and El-Salam sector includes two Hospitals .

Study subjects:

Stratified random sample of nurse interns enrolled in internship year from the academic year 2022/2023, the total number of nurse interns were 620; the required sample size was consisted of 244 nurse interns. Sample size was calculated using a simplified formula (n=N/1+N(e)2, which provided by **Yamane** [11]. A 95% confidence level and P =0.05 are assumed for Equation. Where "n" is sample size. "N" is Number of population (total number of nurse interns in all hospitals). "e" is Coefficient factor = 0.05. Then, the required number of nurse interns from each hospital was calculated with the following formula (number of nurse interns in each hospital × required sample size / total number of nurse interns in all hospitals. A stratified random sampling technique used two stages. Within the first stage, nurse interns were split into six strata according hospitals names. Then in the second stage, random sample of nurse interns was chosen through writing the names of all nurse interns on papers and placing them in a container then they were picked up randomly until the needed sample size from each strata was obtained.

Tools for data collection:

Two tools were used to collect necessary data.

Tool I: Professional nursing value scale: It consists of two parts as follows:

- **Part (1): Personal characteristics for nurse interns** to collect data about their age, gender, place of residence, marital status, and enrollment in college is considered a basic desire, hospital name.
- **Part (2):** It was developed by **Yeun et al.** [12] to measure professional nursing value level. It consists of (29) items grouped under five domains namely: Self-concept of the profession (nine items), Social awareness (eight items), professionalism of nursing (five items), the roles of nursing service (four items), and originality of nursing (three items).The response to the scale allocated on five point Likert scale ranged from (1) not at all- to (5) very much.

Scoring system:

The nurses' interns' responses to the scale were measured on a five-point Likert scale ranged from (1) not

at all- to (5) very much. Total score was extended from (29 to 145), which considered the summation of nurses' interns' responses on the present scale. The nurse interns' score was considered a high professional nursing value if it was > (75%), a moderate professional nursing value if it was from (50%) - < (75%) and a low professional nursing value if it was < (50%).

Tool II: It was developed by **Lee et al.** [13] to assess problem solving ability level. The inventory consists of 30 items, grouped under five domains each domain consist of 6 items.

Scoring system:

The nurse interns' responses were measured on a five-point Likert scale ranging from 1 (very rarely) to 5 (very frequently).The total score of the scale was ranged from (30 to 150).

The nurse interns' score was considered a high problem solving ability level if it was > (75%), a moderate problem solving ability level if it was from (50%) -<(75%) and a low problem solving ability level if it was < (50%).

Content validity and reliability:

The questionnaire was translated into Arabic; and then content and face validity were established by a panel of five experts at the Faculty of Nursing, Zagazig University. Experts were requested to express their opinions and comments on the tool and provide any suggestions for any additions or omissions of items .According to their opinions, all recommended modifications were performed by the researcher. Reliability was measured by using the Cronbach's Alpha Coefficient factor test to determine the internal consistency of each scale and all were satisfactory for professional nursing value scale (0.956), and problem solving ability inventory (0.942).

Field work:

The data collection phase of the study took three months from the 1st of June to the 1st September of 2023. During this stage all the data were collected from the study subjects.

The preparatory phase was done by meeting the study subjects, each nurse intern was met individually, got a full explanation about the aim of the study and was invited to participate. The nurse intern who gave his/her verbal informed consent to participate was handed the self-administered questionnaire and was instructed during the filling. The second phase included handing the required number of questionnaire sheets to nurse interns in their training setting by the researcher to elicit their opinions. The data were collected six days a week .the researcher met nurse interns in each unit in the morning to distribute the questionnaires. Nurse interns completed the questionnaires at the same time of distribution and took about 10-15 minutes. The researcher checked each questionnaire sheet after they had been completed to ensure the completion of all information.

Pilot study:

A pilot study was carried out on 10% of study subjects (24 nurse interns) to test applicability, feasibility, practicability of the tools. In addition, to estimate the time required for filling in the questionnaire sheets. The pilot study was conducted one week before collection of data and nurse interns were selected randomly and they were excluded from the main study sample.

Administrative and Ethical considerations:

The study was approved by the Ethical Committee at Zagazig University's Faculty of Nursing with code: **M.DZU.NUR/173/11/4/2023**. Then, a letter containing the aim of the study was directed from the Faculty of Nursing to the medical and nursing administration of the Zagazig University Hospitals requesting their approval and cooperation for data collection.

Consent was established with the completion of the questionnaires. As

well, verbal explanation of the nature and aim of the study had been explained to nurse interns included in the study sample. Likewise, an individual oral consent was received from each participant in the study after explaining the purpose of the study. Nurse interns were given an opportunity to refuse or to participate, and they were assured that the information would be used confidentially for the research purpose only.

Statistical analysis:

All data were collected, tabulated and statistically analyzed using IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp. Quantitative data were expressed as the mean ± SD & median (range), and qualitative data were expressed as (percentage). Percent of categorical variables were compared using Chi-square test. Pearson' correlation coefficient was calculated to assess relationship between various study variables, (+) sign indicate direct correlation & (-) sign indicate inverse correlation, also values near to 1 indicate strong correlation & values near 0 indicate weak correlation. Multiple linear regression is a predictive analysis. Multiple linear regression is used to describe data and to explain the relationship between one dependent continues variable and one or more independent variables. All tests were two sided. P-value < 0.05 was considered statistically significant, p-value ≥ 0.05 was considered statistically insignificant.

Results:

Table (1): Shows frequency and percentage distribution of the studied nurses according to personal characteristics (n=244), 91.8% of nurse interns aged more than 23 years and the mean age of them was 23.27±0.63 years. As well, the majority of nurse interns was female, lived in rural area, single, and had enough family income and enrollment in college on basic desire (72.1%, 70.5%, 66.0%, 80.7%, and 79.9% respectively) .In addition, the majority of nurse interns (20.1%) were distributed in internal medicine hospital.

Figure (1): Shows total level of studied nurse interns regarding professional nursing value. It's clear from this figure that only 41.8% of nurse interns had a high level of professional nursing value, while 32.4% of them had a low level of professional nursing value.

Table (2): Shows frequency distribution of nurse intern's regarding professional nursing value domains. It's clear from this table that the majority of nurse interns 52.9% had a high level of professional nursing value regarding professionalism of nursing .While 48.4% of them had a low level of professional nursing value regarding originality of nursing

Table (3): Shows frequency distribution of nurse intern's regarding problem solving ability domains. It's clear from this table that the highest percentage of nurse interns (55.3%) had a high level of problem solving ability regarding apply solution. While (43.0%) of them had a low level of problem solving ability regarding seeking solution.

Figure (2): Shows total level of studied nurse intern's problem solving ability. It's clear from this figure that only 46.1% of nurse interns had a high level of problem solving ability, while 28.2% of them had a low level of problem solving ability.

Table (4): Shows relation between total level of nurse intern's professional nursing value and their Personal characteristics. It's clear from this table that there was only statistically significant relation between professional nursing value and Personal characteristics of nurse interns regarding hospitals name according to area of distribution (p-value =0.0001). It obvious that nurse interns who are distributed in surgical

hospital had high professional nursing value than others.

Table (5): Shows relation between total level of nurse intern's problem solving ability and their Personal characteristics. It's clear from this table that there was statistically significant relation between problem solving ability and personal characteristics regarding age (p-value=0.02) and hospitals name (p-value=0.0001). It obvious that nurse interns <23 year, nurse interns who are distributed in heart &chest surgery hospital had high problem solving ability level than others.

Table (6): Shows correlation matrix between total level of professional nursing value, and problem solving. It's clear from this table that there is statistically significant and direct correlation between professional nursing value and problem solving ability (R =0.792, p-value=0.0001).

Discussion:

Concerning the personal characteristics of studied nurse interns

The findings of the present study indicated that most of nurse interns aged more than 23 years. As well, the majority of nurse interns were female, lived in rural area, single, have enough family income and enrollment in college on basic desire. The possible explanation for these results may be due to that the faculty of nursing is predominantly attended by females and nursing is considered a feminist career and entering of male into the faculties of nursing is recent in Egypt and they were enrollment in college on basic desire because of the high employment rates, and many wanted to work in a general hospital after graduation.

These results were in agreement with a study carried out by **Zeng et al.** [(14)] in China, who explore the influencing factors of nursing interns' professional identity and professional value during clinical internship, and found that most of studied nursing students were females and enrollment in college on basic desire.

Conversely, these findings disagreed with a study carried out by **Haghighat et al.** [(15)] in Iran, who investigate the relationship between the development of professional value and the formation of professional identity in nursing student and founded that more than half of the sample are male, aged less than 23 years, family income not enough.

Concerning total level of studied nurse interns regarding professional nursing value

The findings of present study indicated that almost half of nursing students had high professional nursing value. This finding could be due to nurse interns recognized the importance of professional nursing value which provides a good chance for future career, job satisfaction and professional development. Fact that an individual has professional nursing values is guiding in professional practices and increasing the quality of nursing care. Additionally, they aware that values have an effect on their interactions with patients and ultimately patient safety and outcomes, which in turn lead to that high professional nursing value.

The previous findings go in the same line with those of other previous studies carried out by **Kaya et al.** [(16)] in Turkey, which studied the relationship between professional values, ethical sensitivity among nursing students and found that nearly half of students had a high professional nursing value.

Conversely, the previous finding contradicted with **Naseri et al.** [(17)] in Iran, who conducted a study to determine the relationship between experienced incivility behaviors and professional values in the clinical setting and also the factors influencing incivility and professional value and found that the majority of study subject had high level of professional nursing values.

Concerning frequency distribution of nurse intern's regarding professional nursing value domains

The findings of this study presented that the highest percentage of nurse interns had a high level of professional nursing value regarding professionalism of nursing. This result may be due to the nurse interns are willing to utilize their knowledge, skills, time for their patients, show responsibility and ethics that are required for professional and continuously make efforts to be equipped with a great personality. Also, they are agreeing very much that nursing provides great contribution to society with its profession, have a positive social perception.

The previous study findings are in agreement with those of other previous studies **Bang et al.** [18] in Korea, to develop an instrument to assess professional values in Korean undergraduate nursing students, and they found that the majority had a high level of professional nursing value regarding professionalism of nursing and social awareness.

Conversely, these findings are contradicted with study that carried out by **Min et al.** [19] in Korea, to assess effects of self-esteem, problem-solving ability, and professional nursing values on the career identity of nursing college students in south Korea and found that the majority of nursing student had a high level of professional nursing value regarding rules of nursing service and originality of nursing.

As regard to total level of studied nurse intern's problem solving ability

The findings of the present study indicated near less than half of nurse interns had a high level of problem solving ability. This might be due to nurse interns had lack of theoretical knowledge, inadequate clinical experience in which limited exposure to clinical settings and patient care scenarios. These findings are in agreement with a study carried out by **Seçir and Aydın** [20] in Turkey who assessed problem-solving skills and attitudes toward Computer use in health care and found that less than half of nursing students had a high level of problem solving ability level.

Conversely, these findings are in disagreement with the previous study carried out by **El-Demerdash et al.** [21] in Egypt to identify the relation between problem solving ability and clinical-decision making of nursing interns at Suez Canal University and found that more than half of the participants had a high level of problem-solving ability

As regards frequency distribution of nurse intern's regarding problem solving ability domains

The findings of this study presented that the highest percentage of nurse interns had a high level of problem solving ability regarding apply solution. These results may be due to nursing curriculum that nursing students learned in the faculty include course of nursing administration that contain subject of problem solving and decision making these courses emphasize hands-on experience and problem-solving abilities, which may contribute to a higher level of apply solution and decision making skills among nurse interns.

The previous study findings are in agreement with those of other previous studies as the one carried out by **Hwang and Oh** [22] in Korea, to investigate the association between self-directed learning and problem-solving ability using the multiple mediation model to identify strategies to enhance problem-solving ability in nursing students and found that highest percentage of nursing student had a high level of problem solving ability regarding apply solution, decision making domains.

Conversely, these findings are contradicted with study that carried out

by **Min et al.** [19] in Korea, to assess effects of self-esteem, problem-solving ability, and professional nursing values on the career identity of nursing college students in south Korea and found that minority of nursing student a high level of problem solving ability regarding seeking solution and evaluation domains.

Relation between total level of nurse intern's professional nursing value and their Personal characteristic

The current study finding reveals that there was only statistically significant relation between professional nursing value and personal characteristics of nurse interns regarding hospitals name according to area of distribution. In which nurse interns who are distributed in surgical hospital had high professional nursing value than other. One possible cause can be the specialized nature of surgical hospitals. These hospitals often deal with complex medical procedures and critical patient care, requiring a high level of expertise and dedication from nurses. As a result, nurse interns who choose to work in surgical hospitals may have a greater interest and passion for surgical nursing, leading to higher professional nursing values.

These findings are in agreement with the result of the study carried out by **Katoch et al.** [23] in India, the study conducted to investigate significance of professional values-based leadership and the value of nursing student and found that there are statistically significant relation between professional nursing value and personal characteristics of nursing students regarding hospitals name according to area of distribution.

Conversely, these findings disagreed with those studies carried out by **Pokhrel et al.** [24] in Nepal; the study was done to assess the professional values among undergraduate nursing students in Nobel medical college teaching hospital, who found that there was a statistically significant relationship between professional values and age.

Relation between total level of nurse intern's problem solving ability and their Personal characteristics

The current study finding reveals that there was statistically significant relation between problem solving ability and personal characteristics regarding age and hospitals name. In which nurse interns <23 year, nurse interns who are distributed in heart &chest surgery hospital had high problem solving ability level than others. The findings indicate that nurse interns who are younger than 23 years old possess a higher level of problem-solving ability compared to their older counterparts. This may be due to various reasons such as the availability of recent educational resources, exposure to new learning strategies, and the ability to adapt quickly to changing and complex situations.

These findings are in agreement with the result of the study carried out by **Ar-yuwat et al.** [25] in Thailand, who examine the effects of problem-based learning on critical thinking among nursing student and found that there was statistically significant relation between problem solving ability and personal characteristics regarding age.

The findings of the current study are in disagreement with the study of **Bayoumy et al.** [8] in Egypt, who conducted the study to investigate the development of critical thinking disposition and problem-solving aptitude during internship exposure who found that there was no significant correlation between interns' age and problem-solving skills.

Correlation matrix between professional nursing value, Problem solving ability and career identity among studied nurse interns

The current study finding indicated that there is statistically significant and direct correlation between professional nursing value and Problem solving ability. This might be due to nurse interns gain practical experience in clinical settings, which exposes them to real-world challenges and situations. This hands-on experience allows them to develop problem-solving skills and reinforces the importance of professional nursing values. Through direct patient care, interns gain a deeper understanding of the impact they can have on patients' lives and their own career identity and the organizational culture within healthcare institutions during internship period plays a significant role in shaping the values, problem-solving ability, and career identity of nurse interns.

The finding was consistent with the result of the study of **Min et al.** [19] in Korea, to assess effects of self-esteem, problem-solving ability, and professional nursing values on the career identity of nursing college students in South Korea and found that there are positive correlations among self-esteem, problem-solving ability, and professional nursing value.

While this finding contradicted with the study conducted in Korea by **Chae** [26] in China, who assessed problem solving ability and professional value and self-Concept of nursing students and they found that there was no correlation between professional nursing value and problem solving ability.

Conclusion:

Based on the results of the present study, it could be concluded that two fifth of nurse interns had a high level of professional nursing value. As well, more than one fifth of nurse interns had a high level of problem solving ability. Additionally, there was statistically significant and direct correlation between professional nursing value and problem solving ability.

Recommendations:

In view of the main results of the study the following recommendations were derived and suggested,

- At the beginning of internship year the Faculty of Nursing should conduct an orientation program that focus on professional nursing value and important of its dimensions.
- Provide nurse interns with training in effective communication skills, including building rapport with patients, encourage them to engage with patients in a respectful and compassionate manner to build trust and convey professionalism.
- Enhance nursing education programs to include dedicated modules or courses focusing on professional nursing values. Provide theoretical knowledge and practical examples to help nurse interns understand the importance of professional nursing value, ethics, and integrity in nursing practice.
- Prior to enrollment, a student's problem-solving abilities must be evaluated during the interview process for nursing college admission.
- Offer opportunities for nurse interns to apply problem-solving skills in real-world scenarios, such as simulation exercises or rotations in different clinical settings and how to apply problem solving skills in their practical life.

Table (1): Frequency distribution of the studied nurse interns according to personal characteristics (n=244)

Personal characteristics	n.	%
Age		
< 23 years	20	8.2
≥23 years	224	91.8
Mean±SD	23.27±0.63	
Median(Range)	23(22-25)	
Gender		
Males	68	27.9
Females	176	72.1
Place of residence		
Rural	172	70.5
Urban	72	29.5
Marital status		
Single	161	66.0
Married	81	33.2
Divorced	2	.8
Family income		
Enough	197	80.7
Not enough	47	19.3
Enrollment in college is considered a basic desire		
Yes	195	79.9
No	49	20.1
Hospital name		
Medicine hospital	49	20.1
Emergency hospital	47	19.3
Surgical hospital	44	18.0
Pediatric hospital	42	17.2
Heart & Chest surgery	37	15.2
Gynecology and obstetric	25	10.2

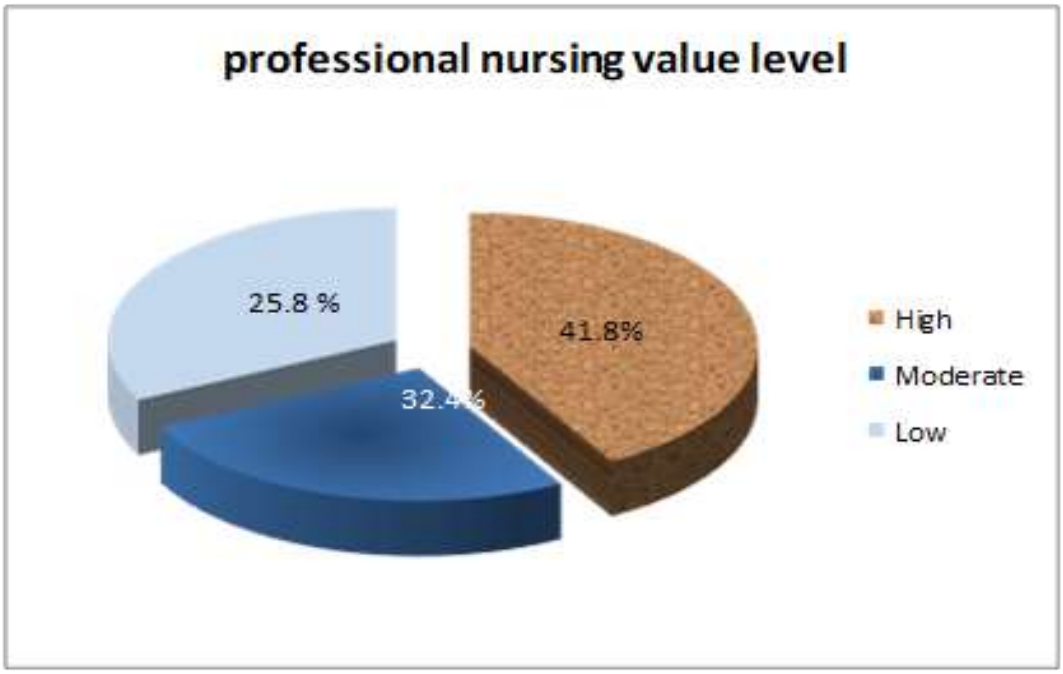

Figure (1): Total level of studied nurse interns regarding professional nursing value (n=244)

Table (2): Frequency distribution of nurse interns' regarding professional nursing value domains (n=244)

Domains of professional nursing value	Domains level					
	High		Moderate		Low	
	No	%	No	%	No	%
1. self-concept of profession score (45)*	109	44.7	46	18.8	89	36.5
2. Social awareness score (40)*	99	40.6	58	23.7	87	35.7
3. Professionalism of nursing score (25)*	129	**52.9**	27	11.0	88	36.1
4. The rules of nursing service score (20)*	92	37.7	48	19.7	104	42.6
5. Originality of nursing score (15)*	87	35.6	39	16.0	118	48.4

Table (3): Frequency distribution of nurse interns' regarding problem solving ability domains (n=244)

Domains of problem solving ability	Domains level					
	High		Moderate		Low	
	N.	%	N.	%	N.	%
1. Clarify problem score (30)*	103	42.2	41	16.8	100	41.0
2. Seeking solution score (30)*	60	24.6	79	32.4	105	43.0
3. Decision making score (30)*	113	46.3	51	20.9	80	32.8
4. Apply solution score (30)*	135	55.3	50	20.5	59	24.2
5. Evolution reflection score (30)*	77	31.6	64	26.2	103	42.2

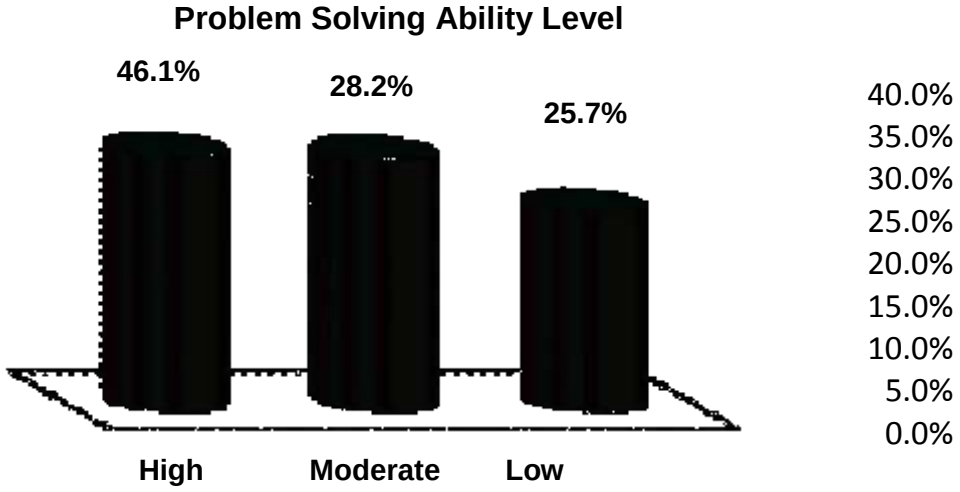

Figure (2): Total level of studied nurse interns' problem solving ability (n=244)

Table (4): Relation between total level of nurse interns' professional nursing value and their Personal characteristics (n=244)

Variables	Professional nursing value level						n.	χ^2	p-value
	High n.102		Moderate n.63		Low n.79				
	No.	%	No.	%	No.	%			
Age									
<23 year	11	55.0	6	30.0	3	15.0	20	3.1	0.214
≥23year	91	40.6	57	25.4	76	33.9	224		
Sex									
Males	27	39.7	17	25.0	24	35.3	68	.372	0.83
Females	75	42.6	46	26.1	55	31.3	176		
Place of residence									
Rural	68	39.5	49	28.5	55	32.0	172	2.35	0.31
Urban	34	47.2	14	19.4	24	33.3	72		
Marital status									
Single	70	43.5	43	26.7	48	29.8	161	7.61	0.11
Married	32	39.5	18	22.2	31	38.3	81		
Divorced	0	.0	2	100.0	0	.0	2		
Enrollment in college is considered a basic desire									
Yes	84	43.1	52	26.7	59	30.3	195	1.995	0.37
No	18	36.7	11	22.4	20	40.8	49		
Family income									
Enough	87	44.2	47	23.9	63	32.0	197	2.936	0.23
Not enough	15	31.9	16	34.0	16	34.0	47		
Hospital names									
Medicine hospital	11	22.4	15	30.6	23	46.9	49		
Emergency hospital	25	53.2	9	19.1	13	27.7	47		
Surgical hospital	26	59.1	6	13.6	12	27.3	44	54.13	0.0001*
Pediatric hospital	15	35.7	4	9.5	23	54.8	42		
Heart & Chest surgery	16	43.2	21	56.8	0	.0	37		
Gynecology and obstetric	9	36.0	8	32.0	8	32.0	25		

χ^2: Chi-square test, p>0.05: no significant, * p<0.05: significant

Table (5): Relation between total level of nurse interns' problem solving ability and their Personal characteristics (n=244)

Variables	Problem solving ability level						n.	χ^2	p-value
	High n.88		Moderate n.87		Low n.69				
	No	%	No.	%	No	%			
Age									
<23 year	7	35.0	12	60.0	1	5.0	20	7.803	0.02*
≥23year	81	36.2	75	33.5	68	30.4	22		
Sex									
Males	27	39.7	23	33.8	18	26.5	68	.544	0.76
Females	61	34.7	64	36.4	51	29.0	176		
Place of residence									
Rural	57	33.1	68	39.5	47	27.3	172	4.03	0.133
Urban	31	43.1	19	26.4	22	30.6	72		
Marital status									
Single	60	37.3	61	37.9	40	24.8	161		
Married	27	33.3	25	30.9	29	35.8	81	4.06	0.398
Divorced	1	50.0	1	50.0	0	.0	2		
Enrollment in college is considered a basic desire									
Yes	75	38.5	66	33.8	54	27.7	195	2.56	0.28
No	13	26.5	21	42.9	15	30.6	49		
Family income									
Enough	75	38.1	66	33.5	56	28.4	197	2.48	0.29
Not enough	13	27.7	21	44.7	13	27.7	47		
Hospital names									
Medicine hospital	5	10.2	21	42.9	23	46.9	49		
Emergency hospital	18	38.3	22	46.8	7	14.9	47		
Surgical hospital	23	52.3	17	38.6	4	9.1	44	72.42	0.0001*
Pediatric hospital	13	31.0	3	7.1	26	61.9	42		
Heart & Chest surgery	21	56.8	16	43.2	0	.0	37		
Gynecology and obstetric	8	32.0	8	32.0	9	36.0	25		

X^2: Chi-square test, p>0.05: no significant, * p<0.05: significant

Table (6): Correlation matrix between total level of professional nursing value and problem solving ability (n=244)

Items	Professional nursing value	
	(r)	P
Problem solving ability score	0.792**	0.0001

Pearson' correlation coefficient (r) ** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

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