Nurses' Perception regarding Twelve Hour Shifts and Professionalism at Intensive Care Units

Alyaa Ashour Shehata [1,2], Karima Ahmed El- Sayed [3], Maha Eid Shokir [4], Seham Aly Mahmoud [5]

[1] Master student of Nursing Administration, Faculty of Nursing, Tanta University.

[2] Demonstrator of Nursing Administration, Faculty of Nursing, Tanta University.

[2] Professor of Nursing Administration, Faculty of Nursing, Tanta University.

[4] Assistant Professor of Nursing Administration, Faculty of Nursing, Tanta University.

[5] Lecturer of Nursing Administration, Faculty of Nursing, Tanta University.

Corresponding author: Aliaa.ashour@nursing.tanta.edu.eg

Abstract

Background: Twelve -hour shifts are flexible patterns of work, but it have an impact on several aspects of patient care and staff nurses' and their professionalism. **Aim:** To assess nurses' perception regarding twelve-hour shifts and professionalism at intensive care units. **Research design:** A descriptive correlation design was used. **Setting:** The study was conducted in all intensive care nurses at Tanta University Hospitals, The Emergency Hospital and Tanta International Educational Hospital. **Subjects**: All (N=272) intensive care nurses who worked twelve -hour shifts in the previously mentioned setting. **Tools**: Two tools were used to collect the data, Twelve Hour Shifts Questionnaire, and Professionalism Questionnaire. **Results**: More than two-thirds of intensive care nurses had a moderate level of overall perception regarding twelve-hour shifts. More than half of intensive care nurses had a high level of overall perception regarding professionalism. **Conclusion:** There was a positive statistically significant correlation found among intensive care nurses overall twelve-hour shifts and their overall professionalism. **Recommendations:** Nurse managers promote a healthy work-life balance through encouraging nurses to practice self-care and create a healthy coping mechanism. Regular meetings should be held for sharing their thoughts, recommendations, and potential development strategies with first line nurse managers.

Keywords: Intensive Care Units Nurses, Professionalism, Twelve Hour Shifts

Introduction

Intensive care nurses are a special occupational category and are subjected to special contextual elements that may affect their professional and personal well-being **(Jarden et al., 2023)**. They exposed to more shifts work where hours of practice have an impact on nurses' capacity to cover twenty-four-hour for patient safety and continuity of care **(Whittam et al., 2021)**. Some traits of

shift work are rotating shifts and lengthy work hours as twelve-hour shifts **(Min et al., 2021)**.

When twelve-hour shifts are implemented as a staffing strategy, become an essential part of nursing schedules. As it improves capacity to recruit and keep nursing staff, provide more days off, which enhance work-life balance, fewer travel and parking expenses, more chances to see family and friends, and cheaper childcare **(Pfeifer, 2022)**. Twelve -hour shift is flexible patterns of work, but it has an

impact on several aspects of patient care and staff nurses as delivery of care, nurses' motivation and fatigue, nurses' wellbeing, communication, nurses' lifestyle and travelling to work and planning, organization, and management of work **(Richardson et al., (2007), Dwyer et al., 2007)**.

The first aspect is delivery of care in which intensive care nurses are frequently overworked during their whole shift particular during twelve-hour shifts due to the high acuity of patients, the present nursing shortage and long-time span that may affect quality and continuity of nursing care **(Mayo et al., 2022)**.

Second, twelve-hour shifts influence nurses' motivation and fatigue. It may elevate nurses' motivation by giving them more opportunities to acquire new knowledge and skills and get on day off after it. In contrast, nurses become less motivated due to they spend days off after it suffer from illness and harmful health impacts over time (**Bae et al., 2022)** .This aspect has also impact on nurses' fatigue where it puts intensive care nurses at risk of becoming exhausted, which

endangers their health and patient safety **(Steege et al., 2022)** Fatigue reduces nurses' motivation that controls, energies, and sustains their conduct **(Herlambang et al., 2021)** .

Third aspect is nurses' well-being include a variety of aspects of nurses' life including their health, happiness, supportive connections and influenced by the demands of their workplace where in turn, impacts how well they can perform their duties and provide care for others during twelve-hour shifts **(Xiao et al., 2022)**. Fourth aspect is communication, when twelve-hour shift reduced handovers between shifts that promote nursing care continuity, fewer chances for misunderstandings or forgetfulness all shift information in which intensive care nurses work to uphold their patient's integrity and safety **(Dall'Ora et al., 2020)**.

Fifth aspect is nurses' lifestyle and travelling to work. This aspect reflect flexibility of twelve -hour shifts for nurses to allow a sense of outside life away from work, improve working lives, opportunity to save expense on travelling to work and provide good-quality time off work **(Bartosiewicz, and Łuszczki 2023)**. Sixth aspect is planning, organization, and management of work. Since, to what extent twelve-hour shifts have given nurses possibilities to prioritize tasks, formulate steps of care suitable to patient problem in addition, organize and manage patients care effectively **(Ferramosca et al., 2023)**.

The six aspects of twelve-hour shifts play an important role in the effective and efficient delivery of health care and performance in the nursing profession. **(Abed Zidan et al.,**

2023). Nursing professionalism is demonstrated by providing high-quality care, upholding respect, accountability, and advocacy, fostering clear communication, self-reflection, and pursuing professional and personal growth **(Benbow et al., 2024)**. Nursing professionalism has many features that include accountability, self-improvement, and professional attitude, advancement of nursing profession, professional membership, and autonomy **(Adams et al., 1996, Hisaret al., 2010, Kasai, and Otsubo 2005)**. Firstly, Professional accountability in nursing involves a complex interplay of legal, ethical, and professional considerations. In addition, ensuring nurses are accountable to themselves, others, the law, their employer, moral principles, and patients for their actions and care **(Chesterton et al., 2021)**.

Secondly self-improvement. It gives nurses the best chances and tools possible to ensure patient safety, high-standard care and improve their knowledge and skills. [41] Thirdly professional attitude, Positive attitudes in nursing lead to altruistic service, compassionate care, and job pride, while negative attitudes result in careless care, shyness, and career loss (**Kakemam et al., 2022)**.

Fourthly, advancement of nursing profession as a particular interest of nursing practice is outlined by standards, supported by research, and essential to high-quality patient and organizational results, prepare nurses for their present and future duties and adjust to a constantly changing healthcare environment **(Rekisso et al., 2022)**. Fifthly, professional membership provides a number of advantages, such as mentorship, additional education, and nursing certifications. These advantages might enable nurses to develop in their careers and gain more expertise in their specialties **(Akimova & Medvedeva, 2020)**. Finally, autonomy, which nurses can deliberately direct, lead, and self-regulate themselves such that they create tactics to manage their own activities after carefully evaluating their own behaviors (**Özdemir, 2020)**.

Significance of study: The majority of healthcare practitioners are nurses, and their expertise is crucial to the implementation of an effective healthcare system, particularly for intensive care nurses. In this regard, the capacity of intensive care nurses to exhibit professionalism in their day-to-day work is vital to their career success and development. The continuity of nursing practice and care delivery are impacted by twelve-hour shifts. It may result in poor performance because of physical strain, exhaustion, burnout, and discontent with one's work, which subsequently compromises patient care and safety. On the other side, it may give them more freedom for personal obligations outside of work, so nurses might find it advantageous **(Fratissier et al., (2021)** .

Thus, work schedules are one of the most important aspects of working conditions that health care organizations should focus on more because they have a major impact on nurses' job satisfaction and productivity. **Mélan, Cascino (2022).** In fact, fine percent from intensive care nurses of Tanta University Hospitals and Tanta International Educational Hospital operate on twelve-hour shifts. Therefore, this study aimed to assess nurses' perception regarding twelve-hour

shifts and professionalism at intensive care units.

Aim of the study: To assess nurses' perception regarding twelve-hour shifts and professionalism at intensive care units.

Study Questions:

1. What is the nurses' perception regarding twelve-hour shifts and professionalism at intensive care units?
2. What is the relation between twelve-hour shifts and professionalism among intensive care nurses?

Study design:

A descriptive correlation study design was used in the present study.

Setting:

The current study was carried out in all Intensive Care Units at Tanta Main University Hospitals, The Emergency Hospital and Tanta International Educational Hospital.

Subjects:

The study's subjects consisted of all intensive care nurses (n= 272) at Tanta Main University Hospitals (n=130), the Emergency Hospital(n=51), and at Tanta International Educational Hospital (n=91) whom worked 12-hour shifts in the previously mentioned setting and available at the time of data collection.   **Tools:** Two following tools were utilized: -

Tool I: Twelve Hour Shifts Questionnaire. This tool was developed by the investigator, guided by **Richardson** et al. **(2007)**, **Dwyer** et al. **(2007)**. It aimed to assess intensive care nurses' perception regarding twelve -hour shifts. It consisted of two parts as follow:

Part 1: Demographic data of intensive care nurses: This part included;

A-Personal data of intensive care nurses such as hospital name, age, gender, marital status, number of children, residence, how long does nurse take to go to work?, educational level, years of experience in intensive care unit, average income/month, and experience of other shift patterns.

B-Characteristics of twelve-hour shifts as repetition of twelve- hour shift, twelve -hour shift selection, in an emergency, twelve-hour shift can be changes, responsible for making the twelve- hour shift, informed of the final form of the twelve-hour shift schedule, and there was a copy of the twelve-hour shift schedule in the department.

Part 2: Part 2: Intensive care nurses' perception about impact of twelve -hour shifts questionnaire:

It consisted of 44 items categorized into seven subscales, delivery of care which included 7 items, motivation included 4 items, fatigue included 8 items, nurses' well-being included 4 items, communication included 8 items, nurses' lifestyle and travelling to work included 6 items and planning, organization, and management of work included 7 items.

Scoring system:

Intensive care nurses' responses were measured on a five points Likert Scale ranging from strongly disagree (1) to strongly agree (5).The total scores were calculated by summing the scores of all categories, then classified according to the statistical cut-off point for: High level of perception about impact of twelve-hours shift >75% (168.75) , moderate level of perception about impact of twelve- hours shift 60% -75% (135 - < 168.75), and low

level of perception about impact of 12-hours shift < 60% (< 135).

Tool II: Intensive Care Nurses' Perception about Professionalism Questionnaire: This tool was developed by the investigator, guided by **Adams** et al., **(1996)**, **Hisar** et al., **(2010)**, **Kasai, and Otsubo (2005)**. It aimed to assess intensive care nurses' perception regarding professionalism.

It consisted of 37 items categorized into six subscales, accountability included 7 items, self-improvement included 8 items, professional attitude included 7 items, advancement of nursing profession included 6 items, professional membership included 4 items, and autonomy included 5 items.

Scoring system:

Intensive care nurses were measured on a five points Likert Scale ranging from strongly disagree (1) to strongly agree (5). The total scores were calculated by summing the scores of all categories, then classified according to the statistical cut-off point for: High level of perception about professionalism > 75% (138.75), moderate level of perception professionalism 60% - 75% (111 - < 138.75), and low level of perception professionalism < 60% (< 111).

Methods

1- An official permission was obtained from the Dean of Faculty of Nursing to the authoritative personal that submitted to the previously mentioned setting.

2- **Ethical considerations:**

   a. An approval was obtained from the Scientific Research Ethics Committee before conducting the study with code number (165) on 12/2022.

   b. Nature of the study was not causing harm to the entire sample.

   c. Informed consent was obtained from the study's participants after explanation of the study's aim.

   d. Confidentiality and anonymity were maintained regarding data collection and the participants have right to withdrawal.

3- The study tools were translated into Arabic and presented to a jury of five translated to Arabic and presented to a jury of five experts in the area of specialty to check their content validity.

4- The experts' responses were represented in four points rating scale ranging from (4-1); 4= strongly, relevant, 3= relevant, 2= little relevant, and 1= not relevant. Necessary modifications were made including; clarification, omission of certain items and adding others and simplifying work related words.

5- A pilot study was carried out on a sample (10%) of the subject (n=28). A pilot study was carried out after the experts' opinion and before starting the actual data collection. The pilot study was done to test clarity, sequence of items, applicability, relevance of the questions and to determine the needed time to complete the questionnaire. The estimated time needed to complete the questionnaire items from nursing staff was 20 – 30 minutes for each sheet.

6- Reliability of tools was tested using Cronbach's Alpha Coefficient test. Reliability of Intensive care nurses' perception about impact of twelve -hour shifts questionnaire= **0.738** and reliability of Intensive care nurses' perception about professionalism questionnaire = **0.870.**

7- **Data collection phase:** the data were collected from intensive care nurses by the investigator. The investigator met the respondents' intensive care   nurses in different   areas   under   study   during working   hours   to   distribute   the questionnaire. The subjects recorded the answer   in   the   presence   of   the investigator   to   ascertain   that   all questions were answered. The data was collected   over   a   period   of   six   months started from the beginning of May 2023 until the end of October 2023

Statistical analysis: Data was fed to the computer   and   analyzed   using   IBM   SPSS software   package   version   20.0.   (Armonk, NY: IBM   Corp)   Qualitative   data   were described   using   number   and   percent.   The significance   of   the   obtained   results   was judged   at   the   5%   level.   The   correlation between   two   normally   distributed quantitative   variables   was   calculated   using Pearson's   correlation   coefficient.   The Student   T-test   was   used   for   comparing between two studied categories. While, F-test   (ANOVA)   was   used   for   comparing between more than two categories.

Results

Table (1): Shows personal data of intensive care   nurses.   It   was   observed   that,   around half (47.8%) of intensive care nurses were from Tanta Main University Hospitals, one-third   (33.5%)   of   them   were   from   Tanta International   Educational   Hospital   and nearly one-fifth (18.8%) of them were from The   Emergency   Hospital.   Clearly,   more   than three   quarters   (76.8%)   of   intensive   care nurses   had   <30   years   with   the   mean   age score 27.11 ± 3.22 and the majority (80.9%) of them were female. Additionally,   more

than   two-thirds   (70.2%)   of   them   were married.

Table (2): Clarifies levels of intensive care nurses'   perception   regarding   twelve-hour shifts dimensions. It was obvious that, more than two-thirds (69.10%) of intensive care nurses   had   a   moderate   level   of   overall perception   regarding   twelve-hour   shifts. Also, more than half (51.8%) of them had a high level of delivery of care dimension. As well as, 62,1%, & 54,8%, of intensive care nurses   had   a   moderate   level   of   planning, organization,   and   management   of   work   and communication   dimensions.   While,   the majority (81.6%) of intensive care nurses had   a   low   level   of   fatigue   dimension.   In addition, 53,3%, 48,5%, 44.1% of them had a   low   level   of   wellbeing,   motivation, lifestyle and travelling to work.

Table (3): Points out levels of intensive care nurses' perception regarding professionalism dimensions. It explains that more than half (54%) of intensive care nurses had a high level   of   overall   perception   regarding professionalism.   In   addition,   two-thirds (64.0%,59.9%,59.9) of intensive care nurses had   a   high   level   of   accountability, professional   attitude,   and   advancement   of nursing   profession,   respectively.   Along with, 52.2%, 49.3%, 43.0 As well as, 52.2%, 49.3%, 43.0 % of them**,** respectively.

Table (4): Clarifies correlation between intensive care nurses' perception of twelve hours shifts and professionalism dimensions. It was evident that there was a significant correlation   between   all   dimensions   of twelve-hour   shifts   and   professionalism among   intensive   care   nurses   where $p \leq$ 0.001.   Except   nurses'   wellbeing   and professional attitude. Also, nurses' lifestyle

and travelling to work with self-improvement and professional attitude where, p ≥ 0.0.

Table (5): Presents relation between intensive care nurses' perception about impact of twelve-hour shifts and their demographic data. It explains that there was no significant difference between percent scores for intensive care nurses' perception about impact of twelve-hour shifts and their data except hospital name, and educational level where p ≤ 0.05.

Continue table (5): Exhibits relation between intensive care nurses' perception about impact of twelve-hour shifts and their demographic data. It demonstrates that there was no significant difference between percent scores for intensive care nurses' perception about impact of twelve-hour shifts and demographic data except twelve-hour shift selection, possibility of change twelve-hour shifts during emergency, where p ≤ 0.05.

Table (6): Portrays relation between intensive care nurses' perception about professionalism and their demographic data. It indicates that there was no significant difference between intensive care nurses' perception about professionalism and their demographic data where p ≥ 0.05.

Continue table (6): Represents Relation between intensive care nurses' perception about professionalism and their demographic data. It clarifies that there was no significant difference between intensive care nurses' perception about professionalism and their demographic data except possibility of change twelve-hour Shifts during emergency, where p ≤ 0.05.

Table (1): Demographic data of intensive care nurses (n = 272)

A-Personal data	No.	%
Hospital name		
Tanta University Hospitals	130	47.8
Tanta International Educational Hospital	91	33.5
The Emergency Hospital	51	18.8
Age		
<30	209	76.8
≥30	63	23.2
Min. – Max.	21.0 –36.0	
Mean ± SD.	27.11 ±3.22	
Median	26.0	
Gender		
Male	52	19.1
Female	220	80.9
Marital status		
Married	191	70.2
Not married	81	29.8
Number of children		
0	131	48.2
1	49	18.0
2	73	26.8
3	17	6.3
4	2	0.7
Min. – Max.	0.0 –4.0	
Mean ± SD.	0.93 ±1.03	
Median	1.0	
Residence		
Rural	190	69.9
Urban	82	30.1
How long do you take to go to work?		
Less than 15 minutes	25	9.2
From 15 to 30 minutes	65	23.9
More than 30 minutes	182	66.9
Educational level		
Secondary Nursing Diploma	0	0.0
Technical Nursing Institute	145	53.3
Bachelor of Science in Nursing	109	40.1
Postgraduate studies	18	6.6

SD: **Standard deviation**

Table (2): Levels of intensive care nurses' perception regarding twelve-hour shifts dimensions (n=272)

Twelve-hour shifts dimensions	High		Moderate		Low	
	No.	%	No.	%	No.	%
- Delivery of care	141	51.8	125	46.0	6	2.2
- Motivation	39	14.3	101	37.1	132	48.5
- Fatigue	10	3.7	40	14.7	222	81.6
- Nurses' wellbeing	25	9.2	102	37.5	145	53.3
- Communication	83	30.5	149	54.8	40	14.7
- Nurses' lifestyle and travelling to work	34	12.5	118	43.4	120	44.1
- Planning, organization, and management of work	78	28.7	169	62.1	25	9.2
Overall impact of twelve-hour shifts questionnaire	**16**	**5.9**	**188**	**69.1**	**68**	**25.0**

Table (3): Levels of intensive care nurses' perception regarding professionalism dimensions (n=272)

Professionalism dimensions	High		Moderate		Low	
	No.	%	No.	%	No.	%
- Accountability	174	64.0	97	35.7	1	0.4
- Self-improvement	111	40.8	117	43.0	44	16.2
- Professional attitude	163	59.9	107	39.3	2	0.7
- Advancement of nursing profession	163	59.9	89	32.7	20	7.4
- Professional membership	72	26.5	134	49.3	66	24.3
- Autonomy	94	34.6	142	52.2	36	13.2
Overall professionalism	147	54.0	121	44.5	4	1.5

Table (4): Correlation between intensive care nurses' perception of twelve hours shifts and professionalism dimensions (n=272)

Intensive care nurses' perception about impact of twelve-hour shifts questionnaire		Intensive care nurses' perception about professionalism						
		Accountability	Self-improvement	Professional attitude	Advancement of nursing profession	Professional membership	Autonomy	Overall
Delivery of care	**r**	0.493*	0.335*	0.388*	0.395*	0.214*	0.213*	0.454*
	p	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*
Motivation	**r**	0.307*	0.359*	0.185*	0.265*	0.331*	0.188*	0.367*
	p	<0.001*	<0.001*	0.002*	<0.001*	<0.001*	0.002*	<0.001*
Fatigue	**r**	-0.189*	-0.191*	-0.128*	-0.263*	-0.179*	-0.131*	-0.240*
	p	0.002*	0.002*	0.035*	<0.001*	0.003*	0.031*	<0.001*
Nurses' wellbeing	**r**	0.132*	0.136*	0.092	0.179*	0.199*	0.166*	0.197*
	p	0.030*	0.024*	0.129	0.003*	0.001*	0.006*	0.001*
Communication	**r**	0.483*	0.290*	0.282*	0.349*	0.246*	0.209*	0.411*
	p	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	0.001*	<0.001*
Nurses' lifestyle and travelling to work	**r**	0.168*	0.113	0.060	0.165*	0.133*	0.161*	0.174*
	p	0.006*	0.062	0.321	0.007*	0.028*	0.008*	0.004*
Planning, organization, and management of work	**r**	0.427*	0.259*	0.258*	0.330*	0.178*	0.261*	0.379*
	p	<0.001*	<0.001*	<0.001*	<0.001*	0.003*	<0.001*	<0.001*
Overall	**r**	0.463*	0.318*	0.283*	0.348*	0.279*	0.274*	0.434*
	p	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*	<0.001*

Table (5): Relation between intensive care nurses' perception about impact of twelve-hour shifts and their demographic data. (n = 272)

A-Personal data	% Scores for impact of twelve-hour shifts	Test of Sig	p
	Mean ± SD.		
Hospital name			
Tanta University Hospitals	63.95 ± 5.66	F= 3.599[*]	0.029[*]
Tanta International Educational Hospital	63.47 ± 7.94		
The Emergency Hospital	66.60 ± 8.05		
Age			
<30	64.22 ± 6.86	t= 0.296	0.768
≥30	64.51 ± 7.64		
Gender			
Male	64.87 ± 7.64	t= 0.668	0.505
Female	64.15 ± 6.89		
Marital status			
Married	64.33 ± 7.22	t= 0.165	0.869
Not married	64.18 ± 6.61		
Number of children			
0	64.64 ± 6.89		
1	63.97 ± 7.27		
2	63.65 ± 7.43	F= 0.769	0.546
3	64.35 ± 5.32		
4	71.39 ± 10.61		
Residence			
Rural	64.11 ± 7.27	t= 0.642	0.522
Urban	64.70 ± 6.48		
How long do you take to go to work?			
Less than 15 minutes	63.51 ± 5.38	F= 0.991	0.372
From 15 to 30 minutes	65.32 ± 6.39		
More than 30 minutes	64.02 ± 7.43		
Educational level			
Secondary Nursing Diploma	–		
Technical Nursing Institute	65.50 ± 6.27	F= 5.165[*]	0.006[*]
Bachelor of Science in Nursing	63.12 ± 7.70		
Postgraduate studies	61.54 ± 7.03		
Number of years of experience in intensive care unit			
<5	64.22 ± 7.0		
5-10	64.12 ± 6.95	F= 0.669	0.513
>10	66.57 ± 8.31		

SD: **Standard deviation**   **t: Student t-test**   **F**: **F for One way ANOVA test**,

Contin Table (5): Relation between intensive care nurses' perception about impact of twelve-hour shifts and their demographic data. (n=272)

	% Scores for impact of twelve-hour shifts Mean ± SD.	Test of Sig	p
Average income/month			
Less than 2000 EGP	61.11 ± 13.60	F= 0.826	0.439
From 2000 EGP to 4000 EGP	64.55 ± 6.42		
More than 4000 EGP	63.97 ± 7.64		
Experience of other shift patterns			
8-hour scheduling	–	t= 0.061	0.952
10-hour scheduling	64.44 ± 4.93		
12-hour scheduling	64.28 ± 7.09		
B-Characteristics of twelve -hour shift			
Repetition of twelve- hour shift			
Once a week	65.17 ± 7.28	F= 1.318	0.269
More than once a week	63.73 ± 6.89		
Once every two weeks	64.58 ± 6.30		
Once a month	–		
Twelve -hour shift selection			
Obligatory	61.16 ± 7.78	t= 2.705	0.007*
Personal choice	64.70 ± 6.84		
In an emergency, can twelve-hour shift be changed?		t= 5.149*	0.001*
Yes	65.21 ± 6.25		
No	59.51 ± 8.82		
Responsible for making the twelve-hour shift			
Executive nurse of the hospital	65.73 ± 4.06	t= 0.846	0.398
Floors supervisor	–		
Head nurse of department	64.19 ± 7.17		
Other than that, mention it	–		
Are you being informed of the final form of the twelve-hour shift schedule?		t= 0.589	0.556
Yes	64.43 ± 6.95		
No	58.81 ± 8.45		
Is there a copy of the twelve-hour shift schedule in the department?		t= 0.431	0.667
Yes	64.26 ± 7.06		
No	66.67 ± 3.47		

SD: **Standard deviation**   **t: Student t-test**   **F: F for One way ANOVA test**,

p: p value for relation between impact of twelve-hour shifts and demographic dat   *: Statistically significant at $p \leq 0.05$

Table (6): Relation between intensive care nurses' perception about   professionalism and their demographic data (n = 272)

A- Personal data	% Scores for professionalism Mean ± SD.	Test of Sig	p
Hospital name		F= 2.000	0.137
Tanta University Hospitals	76.89 ± 10.28		
Tanta International Educational Hospital	79.25 ± 9.93		
The Emergency Hospital	79.46 ± 9.71		
Age		t= 0.296	0.768
<30	78.02 ± 9.99		
≥30	78.66 ± 10.52		
Gender		t= 1.150	0.251
Male	79.61 ± 9.44		
Female	77.82 ± 10.24		
Marital status		t=0.351	0.726
Married	78.02 ± 10.24		
Not married	78.50 ± 9.80		
Number of children		F= 1.099	0.358
0	78.91 ± 10.16		
1	77.58 ±10.20		
2	77.28 ± 9.81		
3	76.59 ± 10.72		
4	89.53 ± 1.43		
Residence		t= 0.919	0.359
Rural	77.80 ± 10.26		
Urban	79.02 ± 9.72		
How long do you take to go to work?		F= 0.022	0.979
Less than 15 minutes	77.86 ± 11.01		
From 15 to 30 minutes	78.05 ± 8.22		
More than 30 minutes	78.25 ± 10.62		
Educational level		F= 0.297	0.744
Secondary Nursing Diploma			
Technical Nursing Institute	78.29 ± 9.93		
Bachelor of Science in Nursing	78.29 ± 10.73		
Postgraduate studies	76.39 ± 7.49		
Number of years of experience in intensive care unit		F= 0.049	0.952
<5	78.0 ± 10.41		
5-10	78.40 ± 9.73		
>10	78.21 ± 9.80		

SD: **Standard deviation   t: Student t-test F: F for One way ANOVA test**,
p: p value for relation between professionalism and demographic data   *: Statistically significant at $p \leq 0.05$

Contin Table (6): Relation between intensive care nurses' perception about professionalism and their demographic data (n = 272)

	% Scores for professionalism	Test of Sig	p
	Mean ± SD.		
Average income/month			
Less than 2000 EGP	73.20 ± 2.66	F= 2.540	0.081
From 2000 EGP to 4000 EGP	77.45 ± 9.44		
More than 4000 EGP	79.92 ± 11.39		
Experience of other shift patterns			
8-hour scheduling	–	t= 1.380	0.212
10-hour scheduling	65.17 ± 6.79		
12-hour scheduling	78.26 ± 10.16		
B-Characteristics of twelve -hour shift			
Repetition of twelve- hour shift	–	F= 0.776	0.461
Once a week	78.84 ± 9.81		
More than once a week	77.92 ± 10.36		
Once every two weeks	74.58 ± 8.08		
Once a month	–		
Twelve -hour shift selection		t= 0.353	0.724
Obligatory	78.76 ± 11.78		
Personal choice	78.09 ± 9.88		
In an emergency, can twelve-hour shift be changed?		t= 2.447*	0.015*
Yes	78.82 ± 9.86		
No	74.79 ± 10.74		
Responsible for making the twelve- hour shift		t= 1.400	0.163
Executive nurse of the hospital	81.59 ± 10.70		
Floors supervisor	–		
Head nurse of department	77.95 ± 10.04		
Other than that, mention it	–		
Are you being informed of the final form of the twelve-hour shift schedule?		t= 0.774	0.440
Yes	78.09 ± 10.10		
No	81.08 ± 10.19		
Is there a copy of the twelve-hour shift schedule in the department?		t= 1.203	0.230
Yes	78.09 ± 10.06		
No	85.14 ± 13.03		

SD: **Standard deviation**   t: Student t-test   F: **F for One way ANOVA test**,

p: p value for relation between professionalism and demographic data

*: Statistically significant at $p \leq 0.05$

Discussion

Intensive care nurses' perception regarding impact of twelve-hour shifts

According to the current study, more than two-thirds of intensive care nurses had a moderate level of overall perception regarding twelve-hour shifts. This study's results may be interpreted by that intensive care nurses had the chance to learn new knowledge and skills during twelve-hour shifts, had more time to study, had chance to enhance communication between themselves, other nurses, and members of health care team. Also, got more information about changes that happen in intensive care unit or hospital policy during working it, not found difficulty to organize family and personal matters, they took good-quality time off work after work it, could save transportation costs, and had not problems in the organization and distribution of work during it.

Along with the present study findings, **Dall'Ora et al., (2022)** demonstrated that most of participants work twelve-hour shifts and prefer them. Likewise, **Hong et al., (2021)** Presented that, the majority of nurses had high perception regarding twelve-hour shifts. Contradictory to these results, **Varghese et al., (2023)**, **Dall'Ora et al., (2020)**, showed that nurses had a low level of overall perception regarding twelve-hour shifts.

Intensive care nurses' perception regarding professionalism

According to the study's findings, more than half of intensive care nurses had a high level of overall perception regarding professionalism. The explanation of these results could be that

two-thirds of intensive care nurses had a high level of accountability, professional attitude, and advancement of nursing profession dimensions. As well as, around half of them had a moderate level of autonomy, professional attitude, and self-improvement dimensions.

Add to that, it may be due to the experience of nurses grows which lead to they start to see their work with the same professionalism as doctors do, and they realize that becoming a fully grown professional may require practice experience that has reached a mature stage. Moreover, this may be due to their understanding of the importance of their role in society. Or people's appreciation for nurses increased especially after the corona pandemic, they were known as the white army, and this played a role in the rise nursing professionalism. Furthermore, it may be related to availability of job opportunities internally and externally.

In this regard, **Çalışkan Alkan et al., (2023)** emphasized nurses' perception regarding their professionalism was at highest percent. Additionally, **Bekalu & Wudu (2023)** claimed that, more than two-thirds of nurses exhibited high mean percent scores of professionalism.

On the other scene, the present study finding is incongruent with **Wang et al., (2023)** who affirmed that positive occupational perception of nurses received the lowest score. Also, nurses' constructive opinions and acknowledgment of their profession were considerably inadequate which indicated low professionalism. Also, **Abate et al.,(2021)** who revealed that more than half of nurses had a moderate

level of overall perception about professionalism.

Correlation between twelve-hour shifts and professionalism among intensive care nurses

The study results were evident that there was a significant correlation between all dimensions of twelve-hour shifts and professionalism among intensive care nurses. Except nurses' wellbeing and professional attitude. Also, nurses' lifestyle and travelling to work with self-improvement and professional attitude.

This result was supported by **Pélissier et al., (2021)** who reported that there was not significance correlation regarding low self-perception of work quality across twelve-hour-hour nursing shifts. Also, this result was agreed with **Jarrar et al., (2019)** ensured that twelve-hour shifts had a significant negative impact on patient safety. But, it was not significant in quality.

The findings were in discordance with **Hong et al., (2021)** they discovered that there was high significant correlation between twelve-hour shifts and the mean quality of life score. In addition, **Fratissier et al. (2021)** who found that, there was shown to be a statistically significant correlation between the twelve-hour shift opinion, work–life balance and the time pressure experienced at work.

Relation between intensive care nurses' perception about impact of twelve-hour shifts and their demographic data

The current study's data analysis explains that there was no significant difference between percent scores for intensive care nurses' perception about impact of twelve-hour shifts and their

data except hospital name specially the Emergency Hospital, and educational level.

That reflects intensive care nurses at the Emergency hospital prefer twelve-hour shifts. Due to the nature of the work and the severity of cases at this place, nurses prefer twelve hours to provide days of rest instead of going to work every day.

Additionally, the outcome of this study result can be explained by more than half of intensive care nurses were technical. Therefore, twelve- hours shifts meet their needs and give them opportunities to complete their studies as take days off and go to work less.

This finding matches with, **Yu et al., (2019)** who revealed that hospitals names had a statistically significantly higher with twelve-hour shifts. Also, stated that twelve-hour shifts were significant with level of qualification.

Moreover, the current study's findings demonstrates that there was no significant difference between percent scores for intensive care nurses' perception about impact of twelve-hour shifts and demographic data except twelve -hour shift selection, that signify the more the 12-hour work schedule was set based on the nurses' choice, the more satisfied they were with it.

Because arranging the roster according to the preferences and choices of the nurses greatly increases their level of satisfaction with the work schedule and creates a balanced work schedule. This allowing nurses to meet their family and other obligations outside of work.

The current study's findings were conflicted with **Dall'Ora et al., (2023)** concluded that was not statistically significant between nurses' perception

about impact of twelve-hour shifts and choices it.

Relation between intensive care nurses' perception about professionalism and their demographic data

the present study's findings shows that, there was no significant difference between intensive care nurses' perception about professionalism and characteristics of twelve-hour shifts except possibility of change twelve-hour shifts during emergency, factors on the basis twelve-hour shift schedule are done which include this items(patients number, nurses Competency')This indicates when change twelve-hour shifts during emergency, nurses' appreciation and respect for their supervisor and the policy of their hospital increases. Which has a positive impact on them and makes them more passionate about their profession.

Conclusion

Based on the findings of the present study it was concluded that, more than two-thirds of intensive care nurses had a moderate level of overall perception regarding twelve-hour shifts. Moreover, more than half of intensive care nurses had a high level of overall perception regarding professionalism. There was a positive statistically significant correlation between intensive care nurses' overall twelve-hour shifts and their overall professionalism.

Recommendations

In the light of the finding obtained from the present study, the following recommendations were suggested:

For the hospital administrators

- Careful consideration is needed for establishing twenty four-hour childcare centers at workplaces. To establish a working atmosphere where nurses can work rotating shifts without being worried about their kids.

- Assure sufficient time/study days for courses and education. So, the organization might set aside time in the busy schedules of the nursing staff for official and unofficial training opportunities like seminars or peer-to-peer learning.

For nurse mangers

- Ensure that workplace safeguards are put into place, such as giving nurses enough time off to relax and take breaks.

For intensive care nurses

- Counsel and educate about home-work balance, stress management, rest, healthy diet, emotional stability, and ergonomics. Because a person's social and familial ties have a significant impact on their happiness and overall health.

Further research

- Study managers' perceptions regarding the effect of twelve-hour shifts and professionalism on nursing staff.

References

Abate, H. K., Abate, A. T., Tezera, Z. B., Beshah, D. T., Agegnehu, C. D., Getnet, M. A., & Kassahun, C. W. (2021). The magnitude of perceived professionalism and its associated factors among nurses in public referral hospitals of west amhara, ethiopia. Nursing: Research and Reviews, 21-30

Abed Zidan, M., Mouhamed Eid, N., & Saeed Abd-Elrhaman, E. (2023). Developing Strategy for Overcoming Problems Faced by Nursing Staff through Hospital Working System. Journal of Nursing Science Benha University, 4(1), 130-46.

Adams, D., Miller, B. K., & Beck, L. (1996). Professionalism behaviors of

hospital nurse executives and middle managers in 10 western states. Western Journal of Nursing Research, 18(1), 77-88.

Ahmed, M. F., & Ibrahim, A. A. (2023). Head Nurses' Professionalism, Systems Thinking and its Relation to Safe Nursing Care. Port Said Scientific Journal of Nursing, 10(1), 257-77.

AAkimova, N. A., & Medvedeva, E. N. (2020). Factors Influencing Nurses' Decision to Join a Professional Association in Russia. Changing Societies & Personalities. 4 (2), 190-204.

Bae, S. H., Pen, M., Sinn, C., Kol, S., An, B., Yang, S. J., ... & Bae, S. (2022). Work hours and overtime of nurses working in Cambodian hospitals. International Nursing Review, 69(2), 150-8.

BBartosiewicz, A., & Łuszczki, E. (2023). Health and Sedentary Behaviors within Polish Nurses: A Cross-Sectional Study. Nutrients, 15(6), 1312.

Bekalu, Y. E., & Wudu, M. A. (2023). Level of Professionalism and Associated Factors Among Nurses Working in South Wollo Zone Public Hospitals, Northeastern Ethiopia. (2022). SAGE Open Nursing, 9,1-8.

BBenbow, W., Jordan, G., Knight, A., & White, S. (2024). A handbook for student nurses: introducing key issues relevant for practice. Scion Publishing Ltd.1-10

Calışkan Alkan, M., & Çelik Durmuş, S. (2023). The Effect of Nurses' Professionalism Attitudes on Nurse–Nurse Collaboration in a City Hospital in Turkey: A Cross-

Sectional Study. Hospital Topics, 101(1), 39-47.

Chesterton, L., Tetley, J., Cox, N., & Jack, K. (2021). A hermeneutical study of professional accountability in nursing. Journal of Clinical Nursing, 30(1-2), 188-99.

Dall'Ora, C., Ejebu, O. Z., Ball, J., & Griffiths, P. (2023). Shift work characteristics and burnout among nurses: cross-sectional survey. Occupational Medicine, 73(4), 199-204.

Dall'Ora, C., Griffiths, P., Emmanuel, T., Rafferty, A. M., Ewings, S., RN4CAST Consortium & Schoonhoven, L. (2020). 12-hr shifts in nursing: Do they remove unproductive time and information loss or do they reduce education and discussion opportunities for nurses? A cross-sectional study in 12 European countries. Journal of clinical nursing, 29(1-2), 53-9.

D Dall'Ora, C., Sainsbury, J., & Allen, C. (2022). Student nurses' views on shift patterns: What do they prefer and why? Results from a Tweetchat. Nursing Open, 9, 1785–93.

D Dwyer, T., Jamieson, L., Moxham, L., Austen, D., & Smith, K. (2007). Evaluation of the 12-hour shift trial in a regional intensive care unit. Journal of Nursing Management, 15(7), 711-20.

El Rahman, S., EL Shaer, A., & Ahmed, S. (2020). Career Motivation and Its Effect on Nursing Staff Burnout. Mansoura Nursing Journal, 7(2), 46-64.

F Ferramosca, F. M. P., De Maria, M., Ivziku, D., Raffaele, B., Lommi, M., Tolentino Diaz, M. Y., ... &

Gualandi, R. (2023). Nurses' Organization of Work and Its Relation to Workload in Medical Surgical Units: A Cross-Sectional Observational Multi-Center Study. In Healthcare, 11(2), 156.

Fratissier, A., Gauberti, P., Morello, R., & Clin, B. (2021). Impact of 12-hr shifts in general hospitals: Study conducted in two intensive care units. Nursing Open, 8(2), 656-63.

Herlambang, M. B., Cnossen, F., & Taatgen, N. A. (2021). The effects of intrinsic motivation on mental fatigue. PloS one, 16(1), e0243754.

Hisar, F., Karadağ, A., & Kan, A. (2010). Development of an instrument to measure professional attitudes in nursing students in Turkey. Nurse Education Today, 30(8), 726-30.

Hong, J., Kim, M., Suh, E. E., Cho, S., & Jang, S. (2021). Comparison of fatigue, quality of life, turnover intention, and Safety Incident frequency between 2-Shift and 3-Shift korean nurses. International Journal of Environmental Research and Public Health, 18(15), 7953.

Jarden, R. J., Sandham, M., Siegert, R. J., & Koziol-McLain, J. (2023). General well-being of intensive care nurses: A prototype analysis. Nursing in critical care, 28(1), 89-100.

JaJarrar, M. T., Minai, M. S., Al-Bsheish, M., Meri, A., & Jaber, M. (2019). Hospital nurse shift length, patient-centered care, and the perceived quality and patient safety. The International journal of health planning and management, 34(1), 387-96.

Kakemam, E., Ghafari, M., Rouzbahani, M., Zahedi, H., & Roh, Y. S. (2022). The association of professionalism and systems thinking on patient safety competency: A structural equation model. Journal of nursing management, 30(3), 817-26.

K Kasai, A. and Otsubo, S. (2005) The Concept Constituting Nurses' Professionalism. Bulletin of Faculty Education, Hirosaki University, 94, 91-104. (In Japanese)

K Koy, V., Yunibhand, J., & Turale, S. (2022). Comparison of 12 and 24-hours shift impacts on ICU nursing care, efficiency, safety, and work-life quality. International Nursing Review, 69(1), 38-46.

Kunaviktikul, W., Wichaikhum, O., Nantsupawat, A., Nantsupawat, R., Chontawan, R., Klunklin, A., & Sirakamon, S. (2015). Nurses' extended work hours: patient, nurse and organizational outcomes. International nursing review, 62(3), 386-93.

Mayo, M., Barto, L. R., & Trout, M. B. (2022). Stress Management in Nursing to Prevent Burnout and Employee Retention.

Mélan, C., & Cascino, N. (2022). Effects of a modified shift work organization and traffic load on air traffic controllers' sleep and alertness during work and non-work activities. Applied ergonomics, 98, 103596.

Metin, Z. G., & Yildiz, A. N. (2023). Update on occupational health nursing through 21st century

requirements: A three-round Delphi study. Nurse Education Today, 120, 105657.

Min, A., Hong, H. C., & Kim, Y. M. (2022). Work schedule characteristics and occupational fatigue/recovery among rotating-shift nurses: A cross-sectional study. Journal of Nursing Management, 30(2), 463-72.

Ö OOzdemir, G. (2020). The Effect of Teachers' Self Leadership Perceptions on Job Satisfaction. OPUS International Journal of Society Research, 15(25), 3098-119.

PéPelissier, C., Cavelier, C., Vercherin, P., Roche, F., Patural, H., & Fontana, L. (2021). Vigilance and sleepiness in nurses working 12-hr shifts and their coping strategies. Journal of Nursing Management, 29(5), 962-70.

PPfeifer, M. A. (2022). The 12-Hour Nursing Shift: Preferred by Staff, but Good for Patients? 122(7), 15

RRekisso, A. D., Mengistu, Z., & Wurjine, T. H. (2022). Nurses' attitudes towards the nursing profession and associated factors in selected public hospitals, Addis Ababa, Ethiopia, 2021: A cross-sectional study. BMC nursing, 21(1), 1-9.

R Richardson, A., Turnock, C., Harris, L., Finley, A., & Carson, S. (2007). A study examining the impact of 12-hour shifts on critical care staff. Journal of Nursing Management, 15(8), 838-46.

Steege, L. M., Knudsen, É. N. A., Brzozowski, S., & Cho, H. (2022).

Addressing occupational fatigue in nurses: a user-centered design approach for fatigue risk management. JONA: The Journal of Nursing Administration, 52(3), 167-76.

Varghese, B., Joseph, C. M., Al-Akkam, A. A. A., AL-Balawi, R. M. D. O. A., Swallmeh, E., & Singh, K. (2023). Nurse's experience working 12-hour shift in a tertiary level hospital in Qatar: a mixed method study. BMC nursing, 22(1), 213.

Wang, M., Wang, L., & Lu, C. (2023). Nurses' sense of organizational support, Self-esteem and perceived professional benefits: A mediating model. Nursing Open, 10(4), 2098-106

Whittam, S., Torning, N., & Patching, J. (2021). A narrative inquiry approach to understanding senior intensive care nurses' experiences of working with new graduate nurses. Journal of Clinical Nursing, 30(21-22), 3314-29.

X Xiao, Q., Cooke, F. L., & Chen, L. (2022). Nurses' well-being and implications for human resource management: A systematic literature review. International Journal of Management Reviews, 24(4), 599-624.

Y Yu, F., Somerville, D., & King, A. (2019). Exploring the impact of 12-hour shifts on nurse fatigue in intensive care units. Applied Nursing Research, 50, 151191.