

Effect of Applying Watson's Model Theory on the Care Behaviors of Nurses in Pediatric Intensive Care Units

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Abstract

Background: Nursing care of children should be tailored towards helping them make the necessary adjustment needed for hospital care. **The aim of this study** was to evaluate to evaluate the effect of applying Watson's model theory on the care behaviors of nurses in pediatric intensive care units A Quasi- experimental research design was used. The study was conducted at Pediatric Intensive Care Units of Tanta Main University Hospital and El-Menshawey General Hospital. Convenient sample of 60 nurses were involved, from previously mentioned settings. Tools: Socio- demographic characteristic and structured interviewing, Caring Behavior Assessment Scale (CBAS) and Barriers facing nurses related to caring behavior Observational check list. **Results** show a significance improvement on the care behaviors of nurses in pediatric intensive care units after the program implementation. **Conclusion:** all nurses showed an improvement in their caring behavior for children after implementation of Watson Caring theory. **Recommendation:** ongoing in-service education programs must be designed and implemented to nurses for all health care settings to improve their caring behavior.

Keywords: Nurses Caring behavior, pediatric intensive care unit and Watson model theory.

Introduction: Children are liable to have many health problems, most of these problems may interfere with their growth and development, daily life. This may necessitate immediate care, hospitalization and sometimes ICU admission. ^(1, 2) Caring is the core concept in nursing role includes; caring for and caring about children. The first of these two main domains in holistic nursing is related to professional knowledge and proficiency, and the second is related to the psychological and spiritual consideration of children. ^(3,4) One way to confirm that caring is central to the children's experience is to

endorse Watson's theory of human caring as the basis or a guide for nursing practice. ^(5, 6)

To be able to perform a caring action, nurses need an artistic as well as a scientific knowledge and experience. Nursing education plays a significant role in the acquisition and advancement of caring attributes and this should be emphasized through their professional lives. ^(7, 8)

Watson pointed out that caring is the moral ideal of nursing whereby the end is protection, enhancement, and preservation of human dignity. Trustful and respectful interpersonal relationships are extremely

important for preserving human dignity. ⁽⁹⁾ Watson puts care science at the starting point of nursing as a discipline, offering a foundation for the profession and care based on metaphysical, philosophical and moral paradigms, respecting the significance of humans in their individuality and mind/body/spirit wholeness. Through what Watson calls clinical caritas, the interaction between sciences and humanism is organized as a guideline for conscious practice of nursing care. ⁽¹⁰⁾

Care must be especially focused on interpersonal relations, since the care moments are expressions of the interaction among two or more people. For Watson, the development of this interaction can happen in a transpersonal manner. Analysis of the transpersonal care concept focuses on the establishment of a relation that goes beyond caring for physiological necessities, aiming at a higher level and resulting in transformation of both individuals ⁽⁹⁾.

Significance of the study:

Pediatric Intensive Care Unit is different from other hospital departments in terms of the treatment methods and technical equipment used physical appearance, and the nature of sensitive environment. When the vital functions of children decline in a risky way, they need to receive treatment in an intensive care unit with a view to maintaining vital functions and applying special treatment methods. Therefore, the caring behavior for nurses must be implemented based on scientific, humanism, sensitive and trustful manner and Watson Model Theory considered one of the most important caring theory could be implemented in nursing practice for nurses in PICU and result to significance improvement in their caring behavior for children.

Aim of the study:

To evaluate the effect of applying Watson's model theory on the care behaviors of nurses in pediatric intensive care units.

Research hypothesis:

Applying of Watson's model theory expected to improve the care behaviors of nurses in pediatric intensive care units **Subjects and Method**

Research design

Quasi-experimental research design was used to conduct the current study.

Setting:

The study was conducted at Pediatric Intensive Care Unit (PICU) of Tanta Main University Hospital and El-Menshawey General Hospital which is affiliated to the Ministry of Health and Population.

Subjects:

A Convenience sampling of sixty nurses provided care for children in previously mentioned settings. For each hospital 30 nurses,

Inclusion criteria of children included children from sexes, age from 3-5 years, conscious children with good cognitive function

Tools of data collection:

Three tools were used in the current study as the following:

ToolI: Socio-demographic Characteristics and Medical History: structure interview questionnaires were developed by the researchers to assess the following: socio-demographic characteristic, it developed by the researcher after extensive reviewing of recent literature. ⁽¹⁾ It consisted from two parts. **Part 1:** Socio-demographic characteristics of the studied nurses including their age, Sex, qualifications, level of education, years of experience at PICU and previous training programs. **Part 2:** including

the following sub-parts **A:** Socio-demographic characteristics of the studied children such as age, sex, diagnosis and date of admission. **B:** Medical history including children's past and present medical history, previous admission, and family history.

Tool II: Caring Behavior Assessment Scale (CBAS): It was developed by Cronin and Harrison in 1988 to assess nurses' perception of caring behaviors in PICU. ⁽⁴⁾ This scale was adapted by the researcher and translated into Arabic to be used in the current study. It consisted of 63 items based on Watson's ten creative factors but there were some items not applicable at pediatric intensive care unit. ⁽⁷⁾ The items of this scale were: humanism/ faith-hope/ sensitivity, helping/ trust, expression of positive/ negative feelings, teaching/ learning, supportive/ protective/ corrective environment, human needs assistance, and existential /phenomological/ spiritual forces. With ideal scoring system as the following: -

Nursing caring behavior items	Ideal range
Humanism / Faith-hope / Sensitivity	12 - 60
Helping / Trust	10 - 50
Expression of positive / negative feelings	4 - 20
Teaching / Learning	5 - 25
Supportive / Protective / Corrective environment	12 - 60
Human needs assistance	8 - 40
Existential /	2 - 10

Score of nurses' caring behavior for each item ranged from 1-5. The least important

caring behavior was score (1) to the most importance of caring behavior was score (5).

The total score of nurses caring behavior ⁽⁴⁾ were 285. It was calculated and classified as follows: ↓65% were considered poor caring behavior, 65-↓ 75% were considered fair caring behavior, and 75-100% were considered good caring behavior.

Tool III: Barriers for caring behaviors: observational checklists were developed by facing nurses related to caring behavior was done to assess barriers related to:-

- **Physical barriers:** such as work area apace, distracting environments, noisy, lack of privacy and living areas.
- **Administrative barriers:** such as chain of command, secretarial job for nurses and heavy workload.
- **Psychological barriers:** such as emotional stress, empathy, giving hope, trust, conflict, anxiety and family issues consideration.
- **Financial barriers:** such as poor salaries, shortage of supplies, low of budget and poor equipment quality.
- **Social barriers:** such as age, gender, different educational levels and different cultures.
- **Other barriers:** such as shortage of nursing staff, large number of children and physical discomfort and weakness.

Nurses' degree of barriers was evaluated as follows:

- Presence of barriers were scored (1)
- Not present barriers were scored (0)

The total score for nurses 'barriers facing was considered as follow:

- Mild barriers were less than 50%.
- Moderate barrirs were less than 65%
- Severe barriers were 70% or more

Method

Administrative process: An official permission to conduct the study was obtained from director of Pediatric Intensive Care Unit

(PICU) of Tanta Main University Hospital and El-Menshawy General Hospital.

Ethical and legal considerations: Nature of the study would not cause any harm or pain to the entire sample. Written consents were obtained from nurses and children's parents to participate in the study after explaining the aim of the study and their right to withdraw from the study at any time without providing a reason. Nurses and children's parents were informed about the confidentiality of their information and it was used only for the purpose of the study.

Content validity: The tools presented to a jury of five experts in the field of pediatric nursing to check content validity clarity, relevance, comprehensiveness, understanding, applicability and ease for implementation. Content validity index was 98.5%.

The reliability of the developed tools used was tested through the internal consistency. The value of Cronbach's alpha coefficient was 0.831.

-A Pilot study: A pilot study was carried out before starting the data collection. It was done on a sample of six nurses to test clarity, visibility and applicability of the study tools. This pilot was excluded from the study. The nature of the study was discussed with the participants.

Field work: The study was conducted throughout four phases:

1-Assessment phase: It was done by the researcher to assess the studied nurses and children who meet the inclusion criteria of this study. During the initial interview, the purpose of the study and the procedures were explained to the participants. Children who meet the inclusion criteria of the studied sample were interviewed by the researcher and their parents. The nurses were asked about their socio-demographic and the mothers were asked about socio-demographic of their

children and their medical history to fill question of tool I. Afterward, the researcher explained to the nurses Caring Behavior Assessment Scale (CBAS) (tool II), and the barriers related to caring behavior (tool III).

2- Planning phase: educational program was developed by researcher based on nurses' need assessment and expected outcomes criteria were formulated, different methods and materials for educational program were used. The educational sessions were prepared after reviewing the related literatures.

3- Implementation phase: the researcher attended at 9:30 am till 12.00 pm every Sunday and Monday at pediatric intensive care unit (PICU) of Tanta Main university hospital and Wednesday and Thursday at El-Menshawy General Hospital to collect the data. The researcher met the study subjects individually or in groups from five to six nurses according to the availability of them. Educational program was carried out by the researcher for all studied subjects using interactive lectures, video presentation, booklet and poster. The participated nurses attended the seven sessions about Watson's theory and nursing caring behavior as the following;

Session 1: including introduction about Watson's theory about Caring behavior and humanism/ faith-hope /sensitivity factor.

Session 2: focus on helping/ trust factor.

Session 3: focus on expression of positive/negative feelings factor.

Session 4: focus on teaching/ learning factor.

Session 5: Focus on Supportive /Protective/ Corrective environment factor.

Session 6: Focus on Human needs assistance factor.

Session 7: Focus on Existential/ Phenomological/ Spiritual forces factor. The time for each session ranged from 30- 40 minutes. It was carried out on seven successive days for each nurse or group of nurses one session per day.

4- Evaluation phase: Educational program was

evaluated before and immediate after the implementation of the educational sessions using constructed tools (II). The data was collected over a period of seven months

Statistical analysis: The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 23, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, comparison between two groups was done using Chi-square test (2). For comparison between means of two groups of parametric data of independent samples, student t-test was used. For comparison between means of two related groups (before & after change) of non-parametric data, Z value of Wilcoxon Signed Ranks Test was used. For comparison between more than two means of non-parametric data, Kruskal-Wallis (X² values) was calculated. Correlation between variables was evaluated using Pearson's correlation coefficient (r). Significance was adopted at $p < 0.05$ for interpretation of results of tests of significance.

Results

Table (1): Demonstrates the percentage distribution of the studied nurses regarding socio-demographic characteristics. Forty-one-point seven percent of them aged 30 years or more, mean age was 27.375 ± 4.435 years. less than two third of nurses (61.6%) had bachelor degree of nursing science. In relation to sex, it was found three quarters (75.0%) of the nurses were female. As regards the nurses' marital status, half of them (50.0%) were married. In addition, the table shows more than half (53.3%) of the nurses have lived in rural areas. Concerning years of experience, it was observed that more than one third of nurses (36.6%) had

more than five years of experience at PICUs. Regarding Previously in-service training program, it was found that more than half of nurses (55.0%) reported that they received basic life support training course.

Table (2): Shows percent distribution of socio-demographic data of the studied children. It was observed those three quarters of the studied children (75.0%) their age between 4-5 years. More than half of them (58.3) were female. In additional, 46.6% of studied children were hospitalized for 4 weeks and more, On the other hand, more than half of them (53.3%) diagnosed by bronchial asthma.

Table (3): Regarding medical history of the studied children. It was observed that less than one quarter of them (23.3%) suffering from persistent vomiting, dehydration and respiratory distress. In relation to past medical history, the same table also showed that less than one third of the children (30.0%) previously suffered from diarrhea.

Tables (4): illustrates mean score of nurses caring behaviors before and after implementation of educational program. It was found that the mean of Humanism / Faith-hope / Sensitivity was 23.150 ± 2.990 and 59.466 ± 0.566 before and after education respectively. The mean of Helping / Trust was 17.883 ± 2.597 and 48.866 ± 0.430 before and after education respectively. The mean of Expression of positive / negative feelings was 6.400 ± 1.428 and 19.850 ± 0.360 before and after education respectively. In additional this table also, showed that the mean of Teaching / Learning before and after the program intervention was 5.366 ± 0.662 and 24.333 ± 0.773 respectively. enhancement of nurses caring behaviors regarding Supportive / Protective / Corrective environment were observed between 23.966

± 2.343 of the nurses before education as compared by 58.216 ± 0.922 of them after the program. The mean of Human needs assistance before and after the program intervention was 20.450 ± 2.332 and 39.800 ± 0.403 respectively. Moreover, the mean of Existential / Phenomological / Spiritual forces was 2.766 ± 0.889 and 9.750 ± 0.473 before and after education.

Table (5): presents Percentage distribution and mean score of levels and mean of total scores of nursing caring behavior. It was noticed that all of the studied nurses (100.0%) had poor nursing caring behavior before program implementation while all of them (100.0%) had good nursing caring behavior after the program implementation. As regards the total mean score mean scores of nursing caring behavior before and after the program intervention were 106.350 ± 6.01 and 260.300 ± 1.54 respectively. Which showed statistically significant difference regarding total nursing caring behavior scores after than before program intervention while $P= 0.0001$.

Table (6): illustrates relationship between total nurses caring behavior and their socio-demographic characteristics before and after program intervention. It was found that there was no statistically significant relation between total nurses caring behavior and their socio-demographic characteristics before and

after program intervention while (P value > 0.05).

Table (1): Percentage distribution of the studied nurses regarding Socio- demographic characteristics.

Socio-demographic characteristics	(n=60)	
	N	%
Age years:		
<20	5	8.3
20-<25	13	21.7
25-<30	17	28.3
≥30	25	41.7
Range	19 – 34	
Mean ± SD	27.375 ± 4.45	
Education level:		
Diploma of nursing school	10	16.7
Technical institute.	10	16.7
Bachelor degree	37	61.6
Master degree	3	5.0
Sex:		
Female	45	75.0
Male	15	25.0
Marital status:		
Single	23	38.3
Married	30	50.0
Divorced	5	8.3
Widowed	2	3.4
Residence		
Rural	32	53.3
Urban	28	46.7
Years of experience:		
Less than five years	19	31.7
Five years	19	31.7
More than five years	22	36.6
Range	1 – 9	
Mean ± SD	4.983 ± 2.037	
Previously in-service		
Yes	33	55.0
No	27	45.0
If yes, what's the program?		
Basic life support	33	100.0

Table (2): Percentage distribution of the studied children regarding socio-demographic characteristics.

Socio-demographic characteristics	(n=60)	
	No	%
Age (years):		
3 - < 4	15	25.0
4 – 5	45	75.0
Range	3 – 5	
Mean ± SD	4.091 ± 0.666	
Sex:		
Males	25	41.7
Females	35	58.3
Period of hospital stay:		
Less than one week	13	21.7
From one week to two weeks	7	11.7
Three weeks	12	20.0
Fourth weeks and more	28	46.6
Diagnosis:		
Atrial septal defect	9	15.0
Ventricular septal defect	9	15.0
Bronchial asthma	32	53.3
Diabetes Type I	10	16.7

Table (3): Percentage distribution of the studied children regarding their medical history.

Medical history	(n=60)	
	No	%
Present medical history: (#)		
Shortness of breath and fainting	9	15.0
Eczema and dizziness	4	6.7
Persistent vomiting and dehydration	14	23.3
Respiratory distress	14	23.3
Hyperglycemia	6	10.0
Persistent fever	8	13.3
Seizures	3	5.0
Jaundice	6	10.0
Past medical history: (#)		
Atrial arrhythmias	6	10.0
Diarrhea	18	30.0
Wheezing	15	25.0
Uncontrolled blood sugar	6	10.0
Fever	5	8.3
Coma	3	5.0
Uncontrolled pain	5	8.3
Sepsis	6	10.0

More than answer

Tables (4): Mean score of nurses caring behaviors items before and after implementation of educational program.

Nursing caring behavior items	Ideal range	Caring behavior score (n=60)		t-test	P
		Range Mean \pm SD			
		Before	After		
Humanism / Faith-hope / Sensitivity	12 - 60	17 – 30 23.150 \pm 2.990	58 – 60 59.466 \pm 0.566	102.597	0.0001*
Helping / Trust	10 - 50	11 – 23 17.883 \pm 2.597	47 – 50 48.866 \pm 0.430	91.603	0.0001*
Expression of positive / negative feelings	4 - 20	4 – 10 6.400 \pm 1.428	19 – 20 19.850 \pm 0.361	67.913	0.0001*
Teaching / Learning	5 - 25	5 – 7 5.366 \pm 0.662	23 – 25 24.333 \pm 0.773	215.229	0.0001*
Supportive / Protective / Corrective environment	12 - 60	19 – 29 23.966 \pm 2.343	56 – 60 58.216 \pm 0.922	101.479	0.0001*
Human needs assistance	8 - 40	16 – 27 20.450 \pm 2.332	39 – 40 39.800 \pm 0.403	63.284	0.0001*
Existential / Phenomological / Spiritual forces	2 - 10	2 – 5 2.766 \pm 0.889	8 – 10 9.750 \pm 0.473	65.005	0.0001*

*Statistically significant difference (P< 0.0001)

Table (5): Percentage distribution and mean of total scores of total scores of nursing caring behavior

Total nursing caring behavior	Nursing caring behaviors (n=60)				X2	P
	Before		After			
	No	%	No	%		
Levels of total nursing caring behavior						
Poor nursing caring behavior: < 65% (53 – 172)	60	100.0	0	0.0		
Good nursing caring behavior: (≥ 75%) (199 - 265)	0	0.0	60	100.0	120.00	0.0001*
Total nursing caring behavior scores:	93 - 121		257 - 264			
Range	106.350 ± 6.01		260.300 ± 1.54			
Mean ± SD						
t- test			207.246			
P			0.0001*			
Changes of total nursing caring behavior after than before program intervention:			166 - 190			
Range			182.416± 6.817			
Mean ± SD						
Z value			6.543			
P			0.0001*			

*Statistically significant difference at (P<0.0001)

Z value of Wilcoxon Signed Ranks Test

Table (6): Relation between mean nurses caring behavior and their socio- demographic data before and after program intervention

Socio-demographic characteristics	Mean change of total caring behavior scores among the studied nurses after then before program (n = 60)	
	Mean ± SD	X ₂ value P
Age (years):		
<20	171.800 ± 6.76	
20 - <25	171.615 ± 7.39	0.559
25 - <30	176.117 ± 6.35	0.576
≥30	174.120 ± 5.93	
Education level:		
Diploma of nursing school	171.400 ± 6.00	0.254
Technical institute.	173.100 ± 7.93	0.799
Bachelor degree	175.270 ± 5.72	
Master degree	176.000 ± 8.23	
Sex:		
Female	174.711 ± 6.97	1.531
Male	171.666 ± 5.13	0.126
Marital status:		
Single	172.913 ± 6.98	
Married	175.551 ± 5.99	1.405
Divorced	174.200 ± 4.08	0.160
Widowed	164.000 ± 8.48	
Residence:		
Rural	173.656 ± 7.14	0.460
Urban	174.285 ± 5.82	0.645
Years of experience:		
Less than five years	172.053 ± 7.03	1.049
Five years	173.772 ± 6.59	0.294
More than five years	176.052 ± 5.68	
Previously in-service training program		
Yes	174.017 ± 6.59	0.340
No	172.666 ± 5.68	0.734

Discussion

Children younger than five years of age were the vulnerable age group representing the majority of admitted children to PICU. Findings of this study revealed that the age of three quarters of the studied children between four to five years and less than one quarter of them diagnosed by bronchial asthma so those children need more care and support. The finding was agreed with the studies that were done by Elbahnasawy et al., (2016) (11) about application of Watson Caring Theory for nurses in pediatric critical care unit and stated that, the children ages were more than half of them were less than 10 years old and more than one third of them has pneumonia.

Based on the findings of the current study, there was a significant difference between the mean scores of the pretest given before the education program on Jean Watson's Theory of Human Caring and the posttest administered after the education implementation. Posttest scores were higher and the significance level. It could be due to nurse's motivation and focused on helping children achieve highest degree of harmony of comfort and satisfaction after the effective educational program about caring behavior.

The results of the present study clarified that nurse's caring behavior related to Humanism / Faith-hope / Sensitivity improved after the implementation of the educational program of caring behavior utilizing Watson Model Theory for children in pediatric intensive care unit. It could be due to the effect of the educational program that enhances nurse's caring behavior including humanism, faith-hope and sensitivity. This result in

agreement with O'Connell and Landers (2008) (12) who reported that the highest score of nurses caring behaviors was related to humanism/faith/hope/sensitivity domain of caring. This is contradicting with Pajnkihar et al. (2017) (13) results which entitled the carative factor needs as the highest caring behaviors as perceived by nurses.

Also, Adereti et al., (2014) (14) who reported that the children appreciated nurses who smiled and gently, provided age-appropriate diversion and light conversation, point out positive well-being and a sense of security, interacted with them as an individual and provided comfort and support.

Concerning nurses caring behavior related to Helping / Trust, it was observed that was improved after implementation the program lead to significant improvements in nurse's response, in this study could suggest that interpersonal nurse children relationships considered very important in pediatric intensive care unit. This finding was incongruent with Villanueva (1999) (15) who reported that the low ranking of the Helping / Trust subscales by the study and control group, in the study there are many barriers to building relations with children in critical care settings such as the level of the nurse's experience and the difficulty experienced when communicating with unresponsive children.

Furthermore, the current study findings also revealed that the Expression of positive / negative feelings items ranked as highly important caring behaviors by nurses after the program compared by before the program implementation. This may be influenced by nurses' awareness

with the vulnerability nature of the critically ill children and the importance of encourage the child to talk about feelings, help the child understand the feelings and don't be upset and give up. This result was in agreement with Elbahnasawy et al., (2016) (11) who mentioned that there were significant improvements in nurse's response to the caring behavior assessment which the mean score of nurse's caring behavior improved posttest compared to pretest with highly statistically significant difference.

Regarding the Teaching / Learning items, the results of the present study clarified that the most of nurses caring behavior had most important caring behavior after the program compared by before the program, which may be rationalized due to effective communication between children and nurses and the nurses receiving training or awareness regarding the caring behaviors. This result Disagreed with a study by Han (2013) (16) who mentioned that the Teaching / Learning items ranked as the least important caring behaviors by nurses. Which may be due to limitation in children's communication by intubation, mechanical ventilation and alteration of children's level of consciousness which are common problem within the critically ill children's society, in addition to low impact of the effect of the cognitive domain of care from the nurses' perspective. This result was supported by Azizi-Fini et al., (2012) (17) who reported that the highest perceived nurses caring behaviors were related to Teaching / Learning on the cognitive domain of caring.

In this study, it was also found that there was a significant difference of the studied nurses regarding to caring behavior related to Supportive / Protective / Corrective environment before and after the program implementation. This finding may be as a result of effect of the educational program on nurses' knowledge of the weakness nature of the critically ill children and the importance of keeping children's safety and protection in highly cultured, hostile and tense intensive care unit environment. This is in harmony with the studies that were done by Myhren et al., (2013) (18) about Job satisfaction and burnout among intensive care unit nurses and physicians, who mentioned that nurses' awareness with the vulnerability nature of the critically ill child and the importance of maintaining children's safety and protection in highly sophisticated, hostile and stressful ICU environment.

All nurses at this study had most important caring behaviors as perceived by them after the program implementation, and also the nurses respectfully assisting with basic needs, with an intentional caring consciousness, administering "human care essentials," which potentiate alignment of mind body-spirit, wholeness and unity of being in all aspects of care; allowing for spirit-filled connection. This finding may be a result of good communication with the staff nursing during the program and the effect of the teaching methods and materials that used in the program. This result was supported by the studies done by Balsdottir et al., (2002) (19) about the importance of nurses' caring behaviors as perceived by children receiving care at an

emergency department, who stated that the highest mean scores for caring behavior scale were related to the subscale of Human needs assistance.

In this study, there was a significant difference of the studied nurse's performance regarding to caring behavior related to Existential / Phenomological / Spiritual forces before and after the program implementation. Maybe it was due to the high importance of this area from the perception of the nurses. It may also be predisposed by the more sensible nature of care practice in this area. Which was consistent with the findings of other studies done by Hubert (2018) (20) about application of Jean Watson's theory of transpersonal caring in nurses practicing in a pain center, who mentioned there was positive change from pre to post surveys for the caring behavior tool. The high ratings for statements relating to Existential / Phenomological / Spiritual forces scale.

Concerning of barriers facing nursing staff related to caring behavior, this study clarified that about half of nurses stated that work area space, noisy, lack of privacy, living areas, chain of command, emotional stress, empathy, conflict, family issues consideration and large number of children as a moderate barrier toward application of Watson theory. Furthermore, all nurses stated that poor salaries and the majority of them reported the shortage of supplies, low of budget, poor equipment quality, as a sever barrier to apply this theory.

The mean score for least important nurse caring behaviors before the program indicates that children respect and emotional needs may be neglected from

nurses due to a shortage of nursing staff, large number of children and heavy workloads, physical discomfort and weakness, nurses spend most of time to writing the reports and doing secretarial jobs. This is congruence with Modic et al., (2016) (21) who stated workload and job satisfaction, workplace circumstances, as well as the nature of children's characteristic, as the overall categorical factors that reported as highly effective on nursing caring behavior by the most of nurses.

Moreover, the current study findings revealed no significant relationship between nursing caring behaviors with their socio demographic characteristics. This is in agreement with Youssef et al., (2013) (22) who have no significant relationship between the nurses level of experience and their perception for children in medical surgical ward among hospitals in Taif city in Saudi Arabia. While this is contradicted with Mizuno et al., (2005) (23) they found that Japanese nurses' perception of important caring behavior was affected greatly by educational background. On the other hand, the current study found negative and statistically significant difference between previously in-service training program before the program and caring behavior scores among the studied nurses. Which is disagree with Shen et al., (2011) (24) a positive correlation between nurses' previous training and workload/job satisfaction with their environment caring categories findings.

Conclusions and recommendations

The study concluded that all nurses were effective and showed an improvement in their caring behavior for children after

applying Watson Caring theory for children in pediatric intensive care unit.

The study recommended that, ongoing in-service education programs must be designed and implemented to nurses for all health care settings to enhance

References

1. Hockenberry M. J. and Wilson D. Wong's Nursing Care of Infants and Children. 11 edition Mosby, CO, St Louis; 2019; 10: 923.
2. Khilnani P., Ramachandran B et al Consensus Guidelines for pediatric intensive care units in India. Committee on Hospital Care of the American Academy of Pediatrics and Pediatric Section of the Society of Critical Care Medicine". *Pediatrics*. 2020; 92(1): 166–175.
3. Shalaby S, Janbi N, Mohammed K, Alharthi K. Assessing the caring behaviors of critical care nurses, *Journal of Nursing Education and Practice*. 2018; 8(10): 77-85.
4. Cronin N, Harrison B. Caring Behavior Assessment tool. In *Watson assessing and measuring caring in nursing and health science* New York springer. 1988; 77-90.
5. Erci B, Sayan A, Tortumluoglu G, Kilec D, Sahin O, Gungormus Z. The effectiveness of Watson's Caring Model on the quality of life and blood pressure of patients with hypertension. *Journal of Advanced Nursing*. 2013; 41(2): 130-139.
6. Dawson B. D. and Trapp R. G. *Reading the medical literature: Basic & Clinical Biostatistics*. Lange Medical Book/ McGraw – Hill. Medical Publication Division. 2011; 3; 305-314.
7. Watson J, Brewer B. *Caring Science Research: Criteria, Evidence, and Measurement: The Journal of Nursing Administration*. 2015; 45(5): 235- i.236.
8. Rady H. I. Profile of childrens admitted to pediatric intensive care unit, Cairo University Hospital: 1-year study. 2014; 7 (4): 500-503.
9. Salimi S, Azimpour A. Determinants of Nurses' Caring Behaviors: Preliminary Validation of a Scale. *J Caring Sci*. 2013; 2(4): 269-278.
10. Attia A, Abd-Elaziz W, Kandeel N. Critical Care Nurses' Perception of Barriers and Supportive Behaviors in End-of-Life Care. *American Journal of Hospice and Palliative Medicine*. 2012; 30 (3): 297-304
11. Elbahnasawy H, Lawend J, Mohammed E. Application of Watson Caring Theory for Nurses in Pediatric Critical Care Unit. *Journal of Nursing and Health Science*. 2016; 5(4): 56-67
12. O'Connell E. and Landers M. The importance of critical care nurses' caring behaviors as perceived by nurses and relatives, *Intensive and Critical Care Nursing*. 2008; 24: 349-358.
13. Pajnikihar M, Stiglic G, Vrbnjak D. The concept of Watson's carative factors in nursing and their (dis) harmony with patient satisfaction. *Peer Journal*. 2017; 5: e2940.
14. Adereti S, Ayobola O, Elizabeth O, Kikelomo. A. Paediatric Patients and Primary Care Givers' Perception of Nurse-Caring Behavior in South Western Nigeria. *International Journal of Caring*. 2014; 7 (2).
15. Villanueva N. Experiences of critical care nurses' caring for unresponsive patients. 1999; 31(4): 216-23.

17. Han J, Wilber S. Altered mental status in older emergency department patients. *Clinics in Geriatric Medicine*. 2013; 29(1): 101-136.
18. Azizi-Fini I, Mousavi M, Mazroui-Sabdani A. Correlation Between Nurses' Caring Behaviors and Patients' Satisfaction. *Nurs Midwifery Stud*. 2012
19. Myhren H, Ekeberg O, Stokland O. Job satisfaction and burnout among intensive care unit nurses and physicians. *Critical care research and practice. Journal of Nursing Administration*. 2013: 1-6.
20. Baldottir G, Jonsdottir H. The importance of nurses' caring behaviors as perceived by patients receiving care at an emergency department. *Heart Lung: J Acute Critical Care*. 2002; 31(1): 67-75.
21. Hubert P. M. Application of Jean Watson's theory of transpersonal caring
22. in nurses practicing in a pain center. 2018; 67 -70
23. Modic M, Siedlecki S, Griffin M. Caring Behaviors: Perceptions of Acute-Care Nurses and Hospitalized Patients with Diabetes. *International Journal for Human Caring*. 2016; 20(3): 160-164
24. Youssef H, Mansour M, Ayasreh I. and Al-Mawajdeh N. A Medical- Surgical Nurse's Perceptions of Caring Behaviors among Hospitals in Taif City, *Life Science Journal*. 2013;10(4).
25. Mizuno M, Ozawa M, Evans D, Okada A, Takeo K. Caring Behaviors Perceived by Nurses in a Japanese Hospital, *J Nurs Studies NCNJ*. 2005; 4(1): 13-19.
26. Shen H, Chiu H, Lee H. Hospital environment, nurse-physician relationships and quality of care: questionnaire survey. *J Adv Nurs*. 2011; 67(2): 349-58.