Relationship between Nurses' Burnout and Implemented Evidence Based Guidelines in Intensive Care Units

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Abstract: *Burnout is one of the most recent concerns among nurses in intensive care units and can be influenced by many factors such as emotional exhaustion and depersonalization. This study was carried out to assess the relationship between nurses' burnout and implemented evidence based guidelines in intensive care units. This study was conducted at neurological and anesthesia intensive care units of Tanta University Hospital. **Design:** A descriptive correlational study design was utilized to achieve the aim of the study. A convenience sample of 97 nurses, and two tools were utilized to collect the data. **Tool I: Nurses' assessment questionnaire**, it consisted of three parts: nurses' bio-sociodemographic and professional data, burnout risk factors and Maslach burnout inventory scale to assess nurse's burnout. **Tool II: Implemented evidence based guidelines checklist. Results:** the most common risk factor (92.8%) among critical care nurses was inappropriate nurse to patient's ratio. Also, it was found that the majority of critical care nurses had poor evidence based practice regarding ventilator associated pneumonia and injuries form falls. **Conclusion:** more than half of the critical care nurses were high risk to burnout that may be critical for implemented evidence based guidelines. **Based on the current study findings it is recommended** that the head nurse should take some actions to decline high-risk factors and improve evidence based practice implementation in intensive care units.*
Key Words: *Burnout, Evidence based guidelines and Intensive care units.*

I. Introduction

Intensive care unit (ICU) is a specialized section of a hospital that provides comprehensive and continuous care for patients who are critically ill and who have life-threatening problems[1]. Nurses working in ICU burden with many problems in their environment such as high job demands, dealing with the dying, negative social climate, and lack of resources. In addition to excessive workload, uncooperative family members, and conflict with physicians, poor quality nursing staff, time demands, staff shortage and violence[2]. All these factors making ICU nurse highly susceptible to experiencing burnout due to continuous stress of the immediate work environment and the stressful nature of critical care . Burnout is work related distress syndrome[3-5].

According to **Critical Care Societies Collaborative (CCSC)** in **2016**, approximately 25 to 33 percent of critical care nurses manifest symptoms of severe burnout syndrome and up to 86 percent have at least one of the classic symptoms such as emotional exhaustion, lack of personal accomplishment and depersonalization[6]. Emotionally exhausted nurses feel fatigued and unable to face the demands of their job or engage with people. Depersonalization occurs when there is emotional and cognitive disengagement from one's job and a distant, distrustful attitude toward it. Lack of personal accomplishment refers to decreased feelings of competence, achievement at work and feelings of failure in achieving goals [7, 8].

Burnout is a problem because it is associated with lower morale, reduced job performance, increase tardiness, job turnover, loss of productivity, high rates of absenteeism, and poor physical, mental and emotional health for nurses[9]. Nursing practice in ICU continues to grow in complexity. Nurses meeting clinical problems every shift with complex patient conditions and risk for complications and mortality rate is increased [10]. Nurses must adjust to system integration and standardization of practices to address patient safety and improve quality of care. It is necessary to create an evidence-based practice (EBP) culture that investigates the barriers and implements the best evidence for patients [11].

Evidence-based practice is a problem solving approach to the delivery of healthcare that integrates the best available evidence, clinician's expertise and patient values and preferences. Nurses should use evidence-based decision making to individualized nursing care based on patient's specific conditions [12-14].

Nurses faced with many personal barriers to integrate evidence into practice such as ICU rules, quality of working relationships, and exposure to end-of-life issues in ICU. Therefore, to implement EBP procedures is not sufficient for critical care nurses to attain patient care. They must increase their professional knowledge and practice by an engagement in continuous learning to sustain an effective communication with colleagues, cooperating in teams and providing a high level of nursing care for critically ill patients [15]. Also, stabilizing nurse emotions contributes in a positive way to patient care [16]. So, the aim of this study was assess the relationship between nurses' burnout and implemented evidence based guidelines in intensive care unit.

II. Aim of The Study

The aim of the study was to identify the relationship between nurses' burnout and implemented evidence based guidelines in intensive care units.

Research questions:
1. What is the level of burnout among ICU nurses working at Tanta University Hospitals?
2. What is the relationship between level of burnout and implemented evidence based guidelines among ICU nurses?

Operational definition:

Evidence based guidelines: Means a set of systematically developed recommendations help the researchers to make appropriate decisions regarding clinical practice provided by critical care nurse. Evidence based guidelines in ICU concentrated on prevention of central line-associated blood stream infections, ventilator associated pneumonia, catheter associated urinary tract infections, injuries from falls and immobility, pressure ulcers and medication error and ICU transportation.

III. Subjects and method

Subjects

Research design: A descriptive correlational study design was used in the current study.
Study Setting: The study was carried out at neurological and anesthesia ICUs at Tanta University Hospitals. Both neurological and anesthesia ICUs have the same characteristics such as nurses qualifications, equipments, supplies and machines that differ with the other ICU.

Subjects: A convenience sample of 97 nurses working in neurological and anesthesia ICUs at Tanta University Hospital were selected to achieve the aim of this study.

Inclusion criteria:
* Nurses with both sex
* Aged from 21- 60 years
* Provide direct patient care for critically ill patient.
   Newly graduated and absence for a long period or at the time of data collection due to work resignation were excluded.

Tools of the study: Two tools were used for data collection as follows:
Tool I: Nurses' assessment questionnaire
This tool was developed by the researcher after extensive review of the relevant literatures [5, 14, 17-19] except part three was developed by *Maslach et al* in *2001* to assess nurse's risks to burnout. It consisted of three parts as follows:

   Part one: Nurses' bio-sociodemographic and professional data to assess data related to age, sex, marital status, level of education, occupation, total years of experience the nurse have in nursing field, years of experience the nurse have in critical care areas and training in ICU.

   Part two: **Burnout risk factors**, to assess factors lead to burnout among nurses working in ICUs. This part composed of 16 items.

   Scoring system: All items were scored on a three-point Likert scale. One score was given for nurse's who was agree, two scores for neither agree nor disagree, and three scores was given to disagree.

   Part three: **The Maslach Burnout Inventory (MBI) Scale:** This self-completion questionnaires was first developed by *Maslach* and Jackson in *(1981)* [20], and later revised and adapted by *Maslach et al* in *(2001)*[21],

to assess characteristics and symptoms of burnout. This part composed of 22 items categorized into three dimensions; 8 items for emotional exhaustion, 4 items for depersonalization, and 7 items for personal accomplishment. In addition to three questions are optional items and were not used in the sum score.

Scoring system: All items were scored on a five-point likert scale ranged from 1(does not happen at all) to 5(almost on daily basis). Items in each dimension are combined in a sum score and then divided on the number of items in that dimension, range 1–5. Higher scores on emotional exhaustion and depersonalization and lower scores on personal accomplishment indicate burnout.

The reliability of the MBI was tested by correlation coefficient, the value ranged between 0.87 for depersonalization and personal accomplishment and 0.83for emotional exhaustion.

Tool II: Implemented evidence based guidelines checklist

This tool was developed by the researcher after extensive review of the relevant literatures [22-24] to assess nurse's actual evidence based practice implementation in ICU. It consisted of checklists; total checklists encompassed a-92 item of EBP step for 7 main clinical procedures in ICU as follows:

16 items for prevention of central line-associated blood stream infections, 11 for ventilator associated pneumonia,12 for catheter associated urinary tract infections, 9 for injuries from falls and immobility, 7 items pressure ulcers and 18 items medication error and 12 items ICU transportation.

Scoring system: The researcher reported the level of EBP implementation on a 3-point Likert scale (2= implemented step, 1=partially implemented step, and 0= did not implement step).

The total scores of **implemented evidence based practice checklist** were 65. The higher scores mean higher EBP level. They were classified as: scores <50 % were considered as poor practice level, scores from 50 % to < 75% were considered as fair practice level, and scores > 75% were considered as good practice level.

Method

i. Ethical consideration:
- Official permission to carry out the study was obtained from the responsible authority of neurological and anesthesia ICUs at Tanta University Hospital before conducting the current study.
- Nurses' verbal consent to participate in the study was obtained and he/she had the right to withdraw from the study at any time without any rationale. The researchers introduced themselves to the nurses and reassured that confidentiality of each nurse was obtained through coding of all data.

ii. All tools of the study were developed by the researchers after reviewing relevant literature and used to collect the data except tool I part three(The Maslach burnout inventory scale) was developed by *Maslach et al (2001)* [21].

iii. Tool I of data collection was translated into Arabic language because the study subjects had different levels of education.

iv. All tools were tested for content validity by 3 panels of experts in the field of Critical Care Nursing and Nursing Service Administration Specialists, Faculty of Nursing, Tanta University, and Medical Biostatistics, Faculty of Medicine, Tanta University and modifications were done accordingly.

v. All tools of the study were tested for reliability and Cronbach alpha was used. It was 0.85 for tool I and 0.88 for tool II which represent high reliable tool.

vi. A pilot study
- A pilot study was carried out on 10 nurses in order to evaluate the clarity, feasibility and the applicability of the different items of the developed tools. Modifications on tools were done and the 10 nurses were excluded from the study sample.
- Data collection for the study was conducted over the period of five months from the middle of April until the end of September 2017.
- During data collection the nurses reported their satisfaction toward wording of questionnaires.
- Date was collected through three different shifts according to Tanta Main University Hospital to ensure the accuracy of data.

vii. Data was collected through self-administer questionnaires which distributed to the nurses (tool I) and observation of the nurses for implemented evidence based guidelines in ICU (tool II).

viii. Each nurse was assessed regarding bio-sociodemographic and professional data and burn out risk factors (part one and three of tool I). Gathering data of tool I required about 15-20 minutes to be answered. The researcher was available in ICU for any explanations and checking each questionnaire after the completion, to be sure that there were no missed items.

ix. The researcher observed the nurses' implementation to applied evidence based guidelines (tool II) during three different shifts until all developed checklist was completed and each nurse's performed action was recorded in the checklist as implemented or partially implemented or did not implement. The nurse's performed action covered the 7 evidence based guidelines which include; prevention of central line-

associated blood stream infections, catheter associated urinary tract infections, ventilator associated pneumonia, injuries from falls and immobility, pressure ulcers and medication error and ICU transportation.

x. Data was evaluated to determine relationship between nurses' burnout and implemented evidence based guidelines in ICUs. Therefore, the relationship between nurses' burnout and implemented evidence based guidelines in ICUs.

Xi. Statistical Analysis:

Data was collected then tabulated and statistically analyzed using Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics and correlation coefficients were used to answer the applied research questions. Descriptive statistics (frequency, percentage) were used to describe nurses personal characteristics and risk factors and the levels of burnout. While correlation a coefficient, a statistically significant difference was adopted at p-value $p \leq 0.05$.

IV. Results
Table (1): Percentage distribution of critical care nurses according to personal characteristics

Variables	Number (n=97)	%
Age in years:		
21-	73	75.3
30-	18	18.6
40-	6	6.2
Sex:		
Males	8	8.2
Females	89	91.8
Residence:		
Urban	29	29.9
Rural	68	70.1
Marital status:		
Married	69	71.1
Divorced	26	26.8
Widow	2	2.1
Educational level:		
Diploma	7	7.5
Associated	57	58.8
Bachelor	33	34.0
Occupation:		
Nursing staff	84	86.6
Head nursing	13	13.4
Type of ICU:		
Anesthesia	55	56.7
Neurological	42	43.3
Years of experience in ICU in years:		
<5	63	64.9
5-10	23	23.7
>10	11	11.3
Total years of experience in years		
<5	54	55.6
5-10	34	35.1
>10	9	9.3
Previous training on EBP in ICU	64	66.0
Having children	59	60.8
Taking care of elderly	49	50.5

Table (1) reveals percentage distribution of critical care nurses according to personal characteristics. This table showed that nearly three quarters (75.3%) of critical care nurses aged from 21 to less than 30 years, while the least percentages of critical care nurses (6.2%) were more than 40 years old.

In relation to sex: It was found that the majority (91.8%) of critical care nurses were females, while the remaining percentage (8.2%) was males.

Regarding educational level: It was noticed that more than half (58.8%) of critical care nurses had associated nursing degree, while the nearly one third of critical care nurses (34.0%) had bachelor nursing degree.

As regards to previous training on EBP in ICU: It was noticed that about two third (66.0%) of critical care nurses had previous training on EBP in ICU.

Table (2): Distribution of critical care nurses according to risk factors

Risk factors	Number (n=97)	%
1- Inappropriate nurse to patient's ratio	90	92.8
2- Time spent to reach the work is too much.	82	84.5
3- Exhaustion from daily intensive duties in ICU	80	82.5
4- Thinking about moving from ICU to another hospital department because of the pressures of work	73	75.3
5- Time lost looking for equipments and supplies.	73	75.3
6- Unsatisfied salary.	69	71.1
7- The work is not interesting in ICU	66	68.0
8- The mean numbers of working shifts per month are more than 7 shifts.	64	66.0
9- No opportunities to make independent decisions in the work.	63	64.9
10-Work load is the main cause of suffering from medical diseases.	63	64.9
11- The number of working hours per week is more 36 hours.	58	59.8
12- The quality of care is low in ICU.	53	54.6
13- Thinking about leaving the job seriously because of stress and psychological pressure.	49	50.5
14- Annoyance from noise of excessive appliances and equipments alarms in ICU	48	49.5
15- Caring for critically ill patients usually represent a stressful situation for me	44	45.4
16- The supervisor or manager is not interested in work results and outcomes	40	41.2
17- spending a lot of time carrying out other colleagues' duties because of shortage	29	29.9
18- A recent conflict with patients or their families	27	27.8
19- Lack of knowledge related to medical equipments and patient diagnosis.	26	26.8
20- Having another work outside hospital.	25	25.8
21- Recent conflicts with colleagues.	20	20.6

Table (2) shows distribution of critical care nurses according to risk factors. It was noticed that the most common risk factor (92.8%) among critical care nurses was inappropriate nurse to patient's ratio, while the least common risk factor (20.6%) was recent conflicts with colleagues.

Table (3): Distribution of critical care nurses in relation to total risk and burnout

Total Score	Level of risk					
	Low risk <50%		Moderate risk 50-75%		High risk >75%	
	n	%	n	%	n	%
Risk score	0	0.0	46	47.4	51	52.6
Burnout score						
Emotional exhaustion	10	10.3	37	38.1	50	51.5
Personal accomplishment	13	13.4	29	29.9	55	56.7
Depersonalization	67	69.1	17	17.5	13	13.4
Optional items	14	14.4	41	42.3	42	43.3

Table (3) illustrates distribution of critical care nurses in relation to total risk and burnout. The result revealed that more than half (52.6%) of critical care nurses had high factors to burnout while, none of them had low risk factors.

Regarding burnout score: It was observed that more than two thirds (69.1%) of critical care nurses with low risk factors had depersonalization. On the other hands, more than half (51.5% and 56.7 respectively) of critical care nurses with high risk factors had emotional exhaustion and personal accomplishment.

Table (4): Distribution of evidence based practice implementation domains of critical care nurses in relation to total practice score

Evidence based practice implementation domains	Total practice score					
	Poor <50%		Fair 50-75%		Good >75%	
	n	%	n	%	n	%
Central line associated infection	13	13.4	79	81.4	5	5.2
Ventilation associated pneumonia	92	94.8	5	5.2	0	0.0
Catheter associated urinary tract infections	8	8.2	84	86.6	5	5.2
Injuries form falls	92	94.8	5	5.2	0	0.0
Pressure ulcers	38	39.2	16	16.5	43	44.3
Medications	0	0.0	33	34.0	64	66.0
ICU transportation	0	0.0	48	49.5	49	50.5

Table (4) shows distribution of evidence based practice implementation domains of critical care nurses in relation to total practice score. It was found that the majority of critical care nurses (94.8%) had

poor practice score of both ventilation associated pneumonia and injuries form falls compared to nearly two thirds (66.0%) of them had good practice score of regarding administering medication.

Table (5): Correlation between age and years of experience of critical care nurses regarding total risk, burnout scores and evidence practice implementation

Total score	Age in years		Years of experience in ICU	
	r	p	r	p
Risk score	-0.124	0.227	0.016	0.879
Burnout score: Emotional exhaustion	-0.311	0.002*	0.109	0.289
Personal accomplishment	-0.019	0.857	-0.332	0.001*
Depersonalization	0.504	0.001*	0.270	0.007*
Optional items	-0.120	0.242	-0.081	0.428
Evidence based practice scores Central line associated infection	-0.046	0.652	0.341	0.001*
Ventilation associated pneumonia	-0.144	0.158	-0.027	0.790
Catheter associated urinary tract infections	-0.139	0.176	0.023	0.826
Injuries form falls	-0.180	0.078	0.115	0.263
Pressure ulcers	-0.184	0.071	0.081	0.428
Medications	-0.153	0.135	0.185	0.070
ICU transportation	-0.232	0.022*	0.065	0.524

* Correlation is significant at P<0.05.

Table (5) shows correlation between age and years of experience of critical care nurses regarding total risk, burnout scores and evidence practice implementation. It was noticed that there were negative and significant correlations regarding age of critical care nurses compared with emotional exhaustion of burnout score and ICU transportation EBP r=-0.311 and -0.232 and p=0.002 and 0.022 respectively. On the other hand there was positive and significant correlation regarding age of critical care nurses compared with depersonalization r=0.504 and p=0.001.

Regarding years of experience: This result illustrates negative and significant correlation noticed in relation to years of experience critical care nurses in ICU compared with personal accomplishment of burnout score r=-0.332 and p=0.001. On the other hand, positive and significant correlations was observed regarding years of experience of critical care nurses compared with depersonalization of burnout score and central line associated infection EBP r=0.270 and 0.341 and p=0.007respectively.

Table (6): Correlation between total risk score of critical care nurses regarding burnout scores and evidence based practice scores

Items	Total risk score	
	r	p
Burnout score: Emotional exhaustion	0.345	0.001*
Personal accomplishment	-0.449	0.001*
Depersonalization	0.358	0.001*
Optional items	-0.267	0.008*
Evidence based practice scores Central line associated infection	-0.153	0.135
Ventilation associated pneumonia	0.071	0.492
Catheter associated urinary tract infections	0.178	0.080
Injuries form falls	-0.055	0.594
Pressure ulcers	-0.038	0.711
Medications	-0.160	0.117
ICU transportation	0.005	0.961

* Correlation is significant at P<0.05.

Table (6) illustrates correlation between total risk score of critical care nurses regarding burnout scores and evidence based practice scores. It can be seen that there were negative and significant correlations regarding total risk score of critical care nurses compared with personal accomplishment and optional items of burnout score r=-0.449 and -0.267 and p=0.001 and 0.008 respectively. On the other hand positive and significant correlations observed regarding total risk score of critical care nurses compared with emotional exhaustion depersonalization r=0.345 and 0.358 and p=0.001 respectively.

Table (7): Correlation between burnout scores and evidence practice implementation of critical care nurses

Evidence based practice	Burnout scores					
	Emotional exhaustion		Personal accomplishment		Depersonalization	
	r	p	r	p	r	p
Central line associated infection	-0.103	0.316	-0.014	0.895	0.047	0.645
Ventilation associated pneumonia	-0.139	0.174	0.009	0.931	0.127	0.214
Catheter associated urinary tract infections	-0.097	0.344	-0.052	0.615	0.155	0.130
Injuries form falls	-0.037	0.717	0.058	0.574	0.043	0.674
Pressure ulcers	-0.108	0.290	0.050	0.629	0.259	0.011*
Medications	-0.025	0.805	0.103	0.315	0.101	0.324
ICU transportation	-0.022	0.834	0.089	0.384	0.125	0.222

* Correlation is significant at P<0.05.

Table (7) reveals correlation between burnout scores and evidence practice implementation of critical care nurses. It can be seen that there was positive and significant correlation regarding depersonalization of burnout score and pressure ulcers EBP r= 0.259 and p= 0.011.

V. Discussion

Burnout is frequent among critical care nurses and has great effects on daily quality of life and may threaten the critically ill patient care. Indeed, burnout may be considered a marker that hinders EBP in ICU [2]. So the aim of this study was to identify the relationship between nurses' burnout and implemented evidence based guidelines in intensive care units.

Regarding Sociodemographic characteristics of nurses under study, the current study illustrated that more than three quarters of critical care nurses was 21 and less than 30 years old. This result was inline with **Al Harbi**[25] **and Zhang et al (2016)**[26], they stated that age was found to be bimodal; the majority of critical care nurses were in the age group of 20-30 years old.

As regards to sex, the present study showed that the majority of critical care nurses were females. This result was congruent with **Zhang et al (2014)** [26], they found that the female nurses accounted for the majority of participants.

In relation to burnout risk factors, the current study revealed that more than half of critical care nurses had high level of burnout risk factors. The fact is that those nurses suffered from inappropriate nurse patient's ratio, they spent too much time to reach their work, had work load and work pressure at their ICU. Also they losing time looking for equipment and supplies and had no opportunities to make independent decisions in their work.

This result was going with **Ahola et al (2017)**[27], they found that the study participants had high workload, lack of participation and social support, and experienced unfairness as predisposing factors to burnout. In addition **Muller (2014)** [28], showed that work pressure, workload, lack of organizational support and management problems were the main factors contributing to burnout.

Regarding burnout dimensions, it was found that more than half of critical care nurses had high level of emotional exhaustion. This in fact related to presence of negative and significant correlations between age and emotional exhaustion. Younger nurses are more likely to take more work tasks. They may feel inadequately prepared, so work overload and stress put the nurse in a weak position that may lead to overwhelming feelings of frustration.

This finding was agreed with conservation of resources theory **Prapanjaroensinet et al (2017)**[29], which proposes that maladaptive coping with excessive demands and depletion of one's resources will result in emotional exhaustion. This result was consistent with **Qu and wang (2015)**[30], they found that nursing staff whose age was below 30 had a higher score in emotional exhaustion. Also, **Elshaeret et al (2017)** [31] mentioned that high levels of emotional exhaustion were reported by the majority of participants.

On the other hands, this finding contradicted by **Cañadas et al (2015)**[32], they found that nurses had intermediate levels of emotional exhaustion. While **Li et al (2015)**[33], they stated that there was a lower level of emotional exhaustion with more informational, emotional, instrumental and appraisal support from supervisors.

` Moreover, the present study revealed that more than half of critical care nurses had high level of personal accomplishment and more than two thirds of them had low level of depersonalization. This is may be due to low level of conflict preset in their working environment. Adequate levels of personal accomplishment will result in improved physical and mental health for nursing professionals who in turn, may generally improve the quality of healthcare provided by nursing staff as well as their occupational productivity. This result was supported by **Al Harbi (2016)** [25], who showed that the participants in the study experiencing a relatively high personal accomplishment at the professional level.

On the other hand, this finding was incongruent with the finding of **Li et al (2015)**[33], they found that nurses had a high degree of low personal accomplishment due to the particularly high risk of developing burnout by nurses who work in the intensive care unit because of their experience of chronic stress. Also, **Vander Collf and Rothmann (2014)**[34], they found that high level of emotional exhaustion and depersonalization, as well as the lowest level of personal accomplishment among nurses.

As regards to evidence based practice, the current study reported that the majority of critical care nurses had poor total practice score of both VAP and injuries from falls. The major barriers for nurses in adopting the EBP process regarding VAP and injuries from falls as part of their daily practice may be related to high workload, emotional exhaustion and lack of knowledge and training.

This finding was in line with **Sedwick et al (2012)** [35], they stated that to prevent VAP; nurses must develop strategies to incorporate EBP into the daily care provided to patients receiving mechanical ventilation. Also nurses need to be consistently apprised of patient safety issues and provided with the support to deliver high-quality care. In addition, **Stavor et al (2017)**[36], they clarified that there was a lack of educational preparation of nurses regarding the process of research utilization. Additionally, **Saunders and Vehviläinen-Julkunen (2016)**[37], they concluded that although nurses believed in the value of EBP were satisfied with and likely to stay in their jobs and in nursing, they lacked the EBP knowledge required for integrating best evidence into clinical care.

In relation to years of experiences and all dimensions of EBP, it was found that there was no correlation between years of experiences and all dimension of EBP except for central line associated infection. This result was inline with **Hadgu et al (2015)** [38] **and Jordan et al (2016)** [39], they found that there was negative and significant correlation between age and EBP. Nurses younger may be more open to the implementation of EBP. This might be due to the fact that younger generation are more technologically motivated, thus enhancing searching strategies.

In relation to burnout dimensions and EBP implementation, the findings suggested that there was no correlation between burnout dimensions and EBP implementation except there was positive and significant correlation regarding depersonalization and pressure ulcers. Understanding the barriers to research utilization and efforts to reduce such barriers would foster the implementation of EBP among nurses. It is necessary for hospitals administrators or authorities to provide conditions that research and using the results to be given priority. Only nursing education and giving them more authority couldn't be sufficient to implement research findings in clinical practice so, organizational climates of hospitals need to change and reform.

This result was congruent with **Fairbrother et al (2016)** [37], they mentioned that higher educational level, lower emotional exhaustion and higher relational job satisfaction were found to be the best predictors of EBP skill level.

VI. Conclusion

The current study concluded that more than half of the critical care nurses were of high risk to burnout that may be critical for implemented evidence based guidelines in both anesthesia and neurological ICU at Tanta University Hospital. The vast majority of critical care nurses had poor EBP regarding VAP and Injuries form falls.

VII. Recommendation

The head nurse should take some actions to decline high-risk factors and improve evidence based practice implementation of ICU nurses through help them to explore both positive and negative feelings and concerns. Also, discover possible solutions and interventions correspondingly.

VIII. Acknowledgment

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