

Nurses' Knowledge toward Measuring Vital Signs for Children in Medical Wards at Ibn Al-Atheer Pediatric Teaching Hospital in Mosul City

معارف الممرضين تجاه قياس العلامات الحيوية للأطفال في الردهات الباطنية في مستشفى ابن الأثير التعليمي للأطفال في مدينة الموصل

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الخلاصة:

خلفية البحث: تلعب العلامات الحيوية اليوم دوراً مهماً في الردهات الباطنية، لتحديد الأطفال المعرضين لخطر التدهور.

الاهداف: هدفت الدراسة الحالية إلى تقييم معارف الممرضين تجاه قياس العلامات الحيوية للأطفال في الردهات الباطنية في مستشفى ابن الأثير التعليمي للأطفال في مدينة الموصل، والعلاقة بين معارف الممرضين وخصائصهم الديموغرافية.

المنهجية: تم تنفيذ التصميم الوصفي في الفترة من 1 / آذار / 2021 حتى 30 / حزيران / 2021 للممرضين في الردهات الباطنية في مستشفى ابن الأثير التعليمي للأطفال في مدينة الموصل. تم اختيار عينة هادفة لهذه الدراسة من (40) ممرض. تكونت الاداة من جزأين: الجزء الأول تضمن (7) عناصر ركزت على الخصائص الديموغرافية للممرضين مثل (العمر، الجنس، الحالة الاجتماعية، المستوى التعليمي، سنوات الخدمة في التمريض، سنوات الخدمة في الردهات الجراحية، عدد الدورات التدريبية في العلامات الحيوية). الجزء الثاني: يحتوي (32) سؤال. تتكون صلاحية محتوى الاداة من لجنة مؤلفة من (12) خبير. معامل الاعتمادية للمعارف كان (0.83). تم تحليل البيانات باستخدام الإحصائيات الوصفية والاستدلالية وذات دلالة احصائية عند قيمة $p \geq 0.05$ باستخدام إصدار الحزمة الاحصائية (24).

النتائج: كشفت نتائج الدراسة ان معظم الممرضين في الفئة العمرية (20-29 سنة) بنسبة (50%). وبحسب الجنس، فإن أكثر من نصف عينة الدراسة كانت من الإناث (52.5%). وحاصلات على اعدادية التمريض (57.5%). بلغت سنوات الخدمة في الردهات الباطنية (1-9 سنوات) (77.5%). معارف الممرضين كانت متوسطة (52.5%). وجدت علاقة مهمة بمشاركة الممرضين في دورات تدريبية حول العلامات الحيوية.

الاستنتاج: وجدت الدراسة أن معظم الممرضين لديهم معرفة متوسطة ونسبة أقل من المعرفة الجيدة. و توجد علاقة ذات دلالة إحصائية بين معارف الممرضين ومشاركتهم في دورات تدريبية حول العلامات الحيوية.

التوصيات: أوصت الدراسة بتنظيم ورش عمل للممرضين العاملين في الردهات الباطنية، وبرامج تدريبية، وتوفير الاجهزة المناسبة لقياس العلامات الحيوية لدى الأطفال في الردهات الباطنية.

الكلمات المفتاحية: الممرضين، المعرفة، العلامات الحيوية، الاطفال.

ABSTRACT:

Background: Today, vital signs play an important role in medical wards, to determine children at risk of deterioration.

Aims of the study: The present study aimed to assess nurses' knowledge toward measuring vital signs for Children in medical wards at Ibn Al-Atheer Pediatric Teaching Hospital in Mosul City, and to figure out the relationship the relationship between nurses' knowledge and their demographic characteristics.

Methodology: A descriptive design was carried out from 1st March until 30th June 2021 on nurses at medical wards in Ibn Al-Atheer Pediatric Teaching Hospital in Mosul City. A purposive sample for this study selected (40) nurses. The instrument is composed of two parts: part one included (7) items which focus on the nurses' demographic characteristics such as (age, gender, marital status, educational level, years of service in nursing, years of service in emergency wards, number of training courses in vital signs). Part two: which is consist of (32) questions. The content validity of the instrument consists of a panel of (12) experts. The dependability coefficient for knowledge is (0.83). Data were analyzed using descriptive and inferential statistics and significant at $p\text{-value} \leq 0.05$ by using SPSS version (24).

Results: Most nurses were in the age group between (20-29) years with (50 %). According to the gender, more than half of the study sample was female (52.5%), and having a secondary nursing school certificate was (57.5%). The years of service in medical wards are (1-9 years) were (77.5%), the nurses' knowledge which is moderate knowledge (52.5%), and find a significant relationship with the nurses' participation in a vital signs training course.

Conclusion: The study Results revealed that the most nurses has moderate knowledge and a lower percentage of good knowledge. Also, a significant relationship between nurses' knowledge and the nurses' participation in training courses of vital signs.

Recommendations: The study recommended organize the workshops for nurses who service in the medical wards, and training programs, and appropriate equipment for measuring vital signs in children available on medical wards.

Keywords: Nurses, Knowledge, Vital Signs, Children.

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INTRODUCTION

Measurement and monitoring of vital signs are essential for early recognition of and responding to signs of deterioration as delayed responses could severely affect children safety. Monitoring vital signs is integral to children care in acute hospitals ⁽¹⁾. Vital signs vary with age, sex, weight, fitness, environment, and medical conditions, among other factors, so no consensus has been achieved as to what levels are normal or abnormal, making vital signs unreliable in isolation as objective parameters ⁽²⁾.

Vital signs rather than being static fluctuate due to 'transient perturbations' such as anxiety, coughing, pain and medications, for example, as well as due to natural physiological changeability. Also, when a children's physiological condition changes, vital signs do not deteriorate with it in a linear fashion and children's with normal vital signs may in fact require urgent attention so that when assessing, measuring and monitoring the infant, child or young person's vital signs, their psychological needs should be recognized and appropriate action taken ⁽³⁾. How often vital signs must be re-assessed depends on the severity of the case. Timing of repeated assessments must be prescribed by a doctor. Additional specific monitoring must also be ordered by the doctor. If the nurse evaluating the child feels that measurement of specific vital signs is indicated; the nurse should always perform the assessment. Nurses caring for children should know the age-appropriate normal values for all vital signs and must alert the doctor when a vital sign is not in the normal range ⁽⁴⁾.

Nurses play a key role in averting adverse outcomes from children deterioration in hospital wards by responding to changes in vital signs ⁽¹⁾. Nurses are central to the assessment of a children's health status (which includes the taking, recording, interpretation and use of vital signs). Nurses' traditional roles include observation of hospitalized children conditions, involving the monitoring of children vital signs ⁽⁵⁾.

Measurement and monitoring vital signs providing an umbrella of protection over acute care hospital wards involves the surveillance and timely and appropriate management of children's who are at risk of adverse physiological change ⁽⁶⁾. The majority of adverse events are preceded by a period of abnormal vital signs (minutes to hours), which could be identified through consistent and accurate monitoring. Close monitoring of vital signs is essential to detect and act upon deterioration with the potential to reduce adverse events. The failure to undertake timely monitoring of vital signs has a significant impact on the effectiveness of the rapid response system ⁽⁷⁾.

AIMS OF THE STUDY

The present study aimed to assess the nurses' knowledge toward measuring vital signs for children at Ibn Al-Atheer Pediatric Teaching Hospital in Mosul City, and to figure out the relationship between nurses' knowledge with their demographic characteristics.

METHODOLOGY:

- Design of the Study

A descriptive design was used to achieve the aim of the study. The study carried out from 1st March until 30th June 2021 on nurses working at medical wards in Ibn Al-Atheer Pediatric Teaching Hospital in Mosul City.

- Setting of the Study

The study took place in medical wards at Ibn Al-Atheer Pediatric Teaching Hospital. The diagnosis, treatment, and health care at the hospital provide for all age of children.

- Sample and sampling of the Study

A purposive sample for this study selected (35) nurses, all nurses who are working in medical wards at Ibn Al-Atheer Pediatric Teaching Hospital, and acceptable to a participation in the study.

- The Study Instrument

In order to collect the study information, the instrument was constructed using review of literature from published research studies ^(8, 9, and 10). It is composed of two parts:

Part One: This part included (7) items which focus on the nurses demographic characteristics (age, gender, marital status, educational level, years of service in nursing, years of service in emergency wards, number of training courses in vital signs).

Part Two: This part is related to the nurses' knowledge about measuring of vital signs in children, which are divided into (32) questions.

- Validity and Reliability of the Instrument

In order to perform the content validity, a panel of (12) experts from various specialties relevant to the topic reviewed the instrument in order to determine its lucidity and relevance. The items of questions were fixed and altered based on expert notes and recommendations. For the current study, the dependability coefficient for knowledge is (0.83).

- Data Collection and Data Analysis

The data was collected from the period of 15th April to 20th May 2021. The sample was informed about the study and its goals. The nurse completes the questionnaire on their own. Data were analyzed using descriptive and inferential statistics and significant at p-value ≤ 0.05 by using SPSS version (24).

RESULTS:

Table (1): Distribution of the Demographical Characteristics of the Nurses in the Study (N=35)

Demographical Characteristics	Items	Frequency	Percent
Age (years) Mean= 28.54, Std. Deviation= 5.53	20-29 years	20	57.1
	30-39 years	13	37.1
	40-49 years	2	5.7
	Total	35	100.0
Gender	Male	16	45.7
	Female	19	54.3
	Total	35	100.0
Marital status	Signal	15	42.9
	Married	16	45.7
	Widowed	3	8.6
	Divorced	1	2.9
	Total	35	100.0
Educational levels	Secondary Nursing School	21	60.0
	Institutes	12	34.3
	University	2	5.7
	Total	35	100.0
Years of service in nursing Mean= 6.97 Std. Deviation= 5.37	1-9 years	25	71.4
	10-19 years	8	22.9
	20 years and more	2	5.7
	Total	35	100.0
Years of service in emergency	1-9 years	30	85.7

wards Mean= 4.91 Std. Deviation= 3.44	10-19 years	5	14.3
	20 years and more	0	0.00
	Total	35	100.0
Participate in vital signs training course	No	30	85.7
	Yes	5	14.3
	Total	35	100.0

N: number of samples, F: Frequency, %: %, M, and S.D: Arithmetic Mean and Standard Deviation

Table (1) shows that the highest percentage of nurses who are the age group between (20-29 years) with (57.1 %), Furthermore, according to the gender, female was (54.8%) of the nurses in the study sample. Regard of marital status (45.7%) of the nurses was married. With more than half having completed secondary nursing school (60%), the years of service in nursing and service in emergency wards are (1-9 years) represented a high percent were (71.4%, 85.7%) respectively. most of the nurses (85.7%) weren't not attending the training courses linked to measuring vital signs.

Figure (1): Distribution of the Overall Nurses' Knowledge toward Measuring Vital Signs for Children in Emergency wards

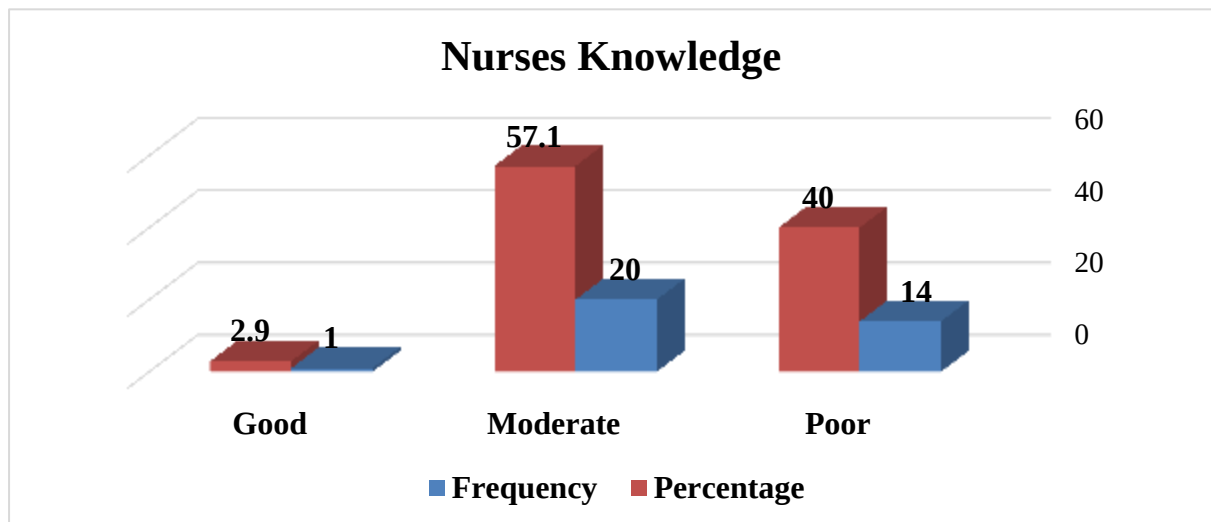


Figure (1) shows the overall nurses' knowledge toward measuring vital signs for children in emergency wards. The levels were moderate knowledge (57.1%), poor knowledge (40%), and good knowledge (2.5%). The knowledge classified according to the mean of score that refers to (1-1.66) poor knowledge, (1.67-2.33) moderate knowledge and (2.34-3) good knowledge.

Table (2): Association Differences between the Nurses' Knowledge and their Demographical Characteristics

Demographical characteristics	Poor	Moderate	Good	χ^2	d.f	P. value
Age (years)						
20-29 years	7	12	1	3.244	4	0.518 N.S
30-39 years	7	6	0			
40-49 years	0	2	0			
Gender						
Male	7	8	1	1.554	2	0.460 N.S
Female	7	12	0			

Marital status						
Single	7	8	0	3.331	6	0.766 N.S
Married	5	10	1			
Widowed	1	2	0			
Divorced	1	0	0			
Educational levels						
Secondary Nursing School	9	11	1	2.247	4	0.690 N.S
Institutes	5	7	0			
University	0	2	0			
Years of service in nursing						
1-9 years	8	16	1	2.626	4	0.622 N.S
10-19 years	5	3	0			
20 years and more	1	1	0			
Years of service in emergency wards						
1-9 years	12	17	1	0.175	4	0.916 N.S
10-19 years	2	3	0			
20 years and more	0	0	0			
Participate in vital signs training course						
No	11	19	0	7.992	2	0.018 S.
Yes	3	1	1			

χ^2 : Chi-Square Tests, d.f: Degree of Freedom, P-value $\leq$ 0.05: S: Significant, N.S: No Significant

Table (2) shows there is statistically significant relationship between the nurses' knowledge and nurses participate in training course about vital signs. Also, in this table demonstrate no Significant differences between nurses' knowledge and other demographic characteristics such as age, gender, marital status, educational level, years of service in nursing, years of service in emergency wards.

DISCUSSION

Clinical deterioration is unnoticed or is not detected until it is too late to treat, despite the fact that vital sign changes properly predict it. This is primarily due to insufficient vital sign tracking or an incorrect response to aberrant values. There is a lack of understanding and awareness of vital sign changes and their consequences for child care. The value of vital sign monitoring in clinical practice is undeniable, but how to appropriately monitor and interpret them, as well as how frequently they should be measured, remains still unclear ⁽¹¹⁾. The discussion of the present study includes of the following:

1. Nurses Demographical Characteristics

The current study revealed most of nurses who are the age group between (20-29 years) was (50 %). While the lowest percentage of nurses' age was 40 years and more (10%). The female gender was (52.5%) and this percentage was higher than the males' gender (47.5%). More than half of nurses were married (52.5%) with having completed secondary nursing school. The nurses have (1-9) years of service in nursing and service in medical wards were (62.5%) and (77.5%) respectively. About training course of measuring vital signs in children, the highest percentage of nurses who did not attend in training courses was (87.5%), as shows in table (1).

This study results were in the same line with the study that done by Walsh et al. (2005) showed the majority of participants were female (84.3%), with males accounting for the remaining individuals (13.7 %). According to the same data, the majority of nurses (43.1 %) are between the ages of (25 and 30) years, while the lowest percentage (21.6 %) are between

the ages of (20 and 24) years. The same results of the present study are inconsistent with Walsh study, as much as half of the nurses have a diploma (58.8 %). Almost (49.0 %) of nurses had more than five years of experience in children's emergency wards, whereas (23.5 %) had less than five years ⁽¹²⁾.

This study results supported by Mohammed (2016) study, that revealed that fewer than half of the nurses in the study group (38.9%) were between the ages of 20 and 25 years, while (35.6%) were between the ages of 26 and 30, and (25.6%) were above the age of 30 years. With years of service spanning from one to three years, it was revealed that (43.3%) of the study, and (35.6) had 4-6 years of service, and (21.1%) had more than three years of service. Lastly, (21.1%) have more than five years of service. It did not agree with educational level, as the majority of the nurses had a bachelor's degree (68.9%), a master's degree (25.6%), and a diploma (5.6%) ⁽⁸⁾.

While, the study who conducted by (Zubedeh et al., 2016) disagreement with present study, which founded that the majority of 65 nurses in the sample were over 30 years old, and the year of work experience ranged from 1 to more than 16 years, Nurses with a higher percentage for diploma degrees than those with a bachelor's degree and master's degree. At the same time agree with the gender of the participants was females ⁽¹³⁾.

2. Nurses Knowledge toward Measuring Vital Signs for Children

The body's basic processes are routinely monitored using vital signs. The measurements are important indicators of a child's health and early warning indications of decline. Normal values differ based on age, gender, and weight. Heart rate, respiration rate, temperature, and blood pressure are the four most routinely reported vital indicators ⁽¹⁴⁾.

In the present study the total of nurses' knowledge toward measuring vital signs in children which was more than half of nurses have moderated knowledge as (52.5%), and less than half of nurses have poor knowledge as (45%). Finally, the lower percentage was good knowledge (2.5%). The knowledge is divided into three categories based on the mean score: poor knowledge (1-1.66), moderate knowledge (1.67-2.33), and good knowledge (2.34-3). As shown in figure (1).

The results of the current study were not compatible with Sari et al., (2012), who revealed that the nurses knowledge toward measurement of body temperature was (87%), and measurement pulse rate was (87.6%), also measurement of respiration rate was (93%), in the end, the measuring blood pressure was (96%) in the children. After this determined to be areas where the majority of nurses had sufficient knowledge about measuring vital signs in the children ⁽¹⁵⁾.

3. Relationship between Nurses' Knowledge and Demographical Characteristics

The association between nurses' knowledge and demographic characteristics was discovered using inferential statistical analysis through a chi-square test. In the table (2), a statistically significant relationship was found between nurses' knowledge and the number of participate in training courses in measuring vital signs in children. And there is no significant relationship with the rest of the demographic characteristics age, gender, marital status, educational level, and years of service in nursing, years of service in emergency wards.

This finding is consistent with Mohammed (2016) study, which found no correlation between the nurses' years of experience and their understanding of how to evaluate vital signs in children ⁽¹⁶⁾.

CONCLUSION

The present study concluded that (52%) of the nurses had moderate knowledge, and (45%) of them had poor knowledge toward measuring vital signs for children. The statistical test revealed that no statistical relation between nurses' knowledge and demographical characteristics, except for the highly significant relationship between nurses' knowledge and the nurses' participation in a vital signs training course.

RECOMMENDATIONS:

The following recommendations should be implemented based on the study's findings:

1. The workshops and training programs for nurses about the importance measurement of vital signs and training programs for nurses how to measure vital signs for children in medical wards are critical.
2. In the medical wards, suitable equipment for measuring vital signs should be accessible.
3. Activating the Continuing Education department in the medical wards about the importance of children's vital signs.

- ETHICAL CONSIDERATIONS

The confidentiality and anonymity of participants were also accepted by the research ethics committee at the Faculty of Nursing / University of Baghdad.

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