

Knowledge and Practices of Nursing College Student's Regarding Blood Pressure Measurement in Hospitals at Kirkuk City

معارف وممارسات طلبة كلية التمريض حول قياس ضغط الدم في مستشفيات مدينة كركوك

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الخلاصة

خلفية البحث: ضغط الدم هو من الإجراءات السريرية الأساسية المتكررة ، وهناك الكثير من الدراسات تشير إلى أن أخطاء قياس الضغط تنتج عادة من المشاكل بالألات المستعملة (أدوات غير صالحة) بالإضافة إلى الإجراءات الغير ملائمة للقياس.

الهدف: هذه الدراسة هو تقييم معارف وممارسات طلبة كلية التمريض. وقد أجريت الدراسة الوصفية على طلبة كلية التمريض/ المرحلة الرابعة في جامعة كركوك من أجل تقييم معارف ومهارات الطلبة حول قياس ضغط الدم.

المنهجية: أجريت الدراسة الوصفية الغير تجريبية على (90) طالب وطالبة من كلية التمريض المرحلة الرابعة في جامعة كركوك وقد تم جمع البيانات للمدة (من 1 تشرين الأول 2015 إلى 30 شباط 2016) ويتكون الاستبيان من جزأين , يتعلق الجزء الأول حول المعلومات الديموغرافية , الجزء الثاني من (23) سؤال حول معارف ومهارات طلبة كلية التمريض حول قياس ضغط الدم وقد تم تحليل البيانات باستخدام الاحصاء الوصفي (النسبة المئوية) بواسطة برنامج spss

النتائج: اظهرت النتائج ان (82 ٪) من الطلاب لم يطبقوا خطوات القياس بالكامل , و كانت الطالبات أفضل نوعا ما من الذكور وأظهرت نتائج الدراسة أن أعلى نسبة (80 ٪) من عينات الدراسة من الفئة العمرية (21-23) سنة و كان أكثر من ثلاثة أرباع (81 ٪) منهم من الإناث , وقد اخذ كل طالب في التمريض " دروس حول قياس ضغط الدم، و (44 ٪) منهم شرح للمريض ما سيتم القيام به و (56 ٪) منهم لم يشرح العملية للمريض ، و (80 ٪) من طلاب التمريض يملكون معرفة جيدة حول سحب الملابس الى اعلى الذراع بحيث لا توجد أي مواد تحت كفة الجهاز، وكان (76 ٪) من الطلاب يملكون ممارسة جيدة في تسجيل نقطة اختفاء النبض، و (79 ٪) منهم لديهم ممارسات ضعيفة في إعطاء فرصة للمريض إذا كان لديه أي سؤال.

الاستنتاج: استنتجت الدراسة بان غالبية الطلاب لديهم ضعف في تطبيق بعض الخطوات التي يجب اتباعها في عملية قياس ضغط الدم و تحديدا في المهارات اليدوية

وكانت الطالبات أفضل من الذكور نوعا ما. لذلك يجب أن تكون مراجعة المناهج التعليمية من ممارسات التمريض الجامعية و التركيز على أهمية التدريب على المهارات .

التوصيات: توصي الدراسة بزيادة ساعات التدريب العملي في المستشفى والإشراف المباشر من قبل الأستاذ المشرف على التدريب لتعميق الثقة عند الطالب وتوجيه الطالب اثناء التلوك في اداء بعض الخطوات العملية.

وكذلك إجراء دراسات اخرى لجميع طلاب كلية التمريض واختبار الطلاب في نهاية سنوات الدراسة اي قبل ان يتخرج حول كيفية قياس العلامات الحيوية .

الكلمات المفتاحية:- معارف, ممارسات ,طلبة كلية التمريض , ضغط الدم

Abstract

Background:- Blood pressure (BP) measurement is a frequent, basic clinical procedure. However, studies have shown measurement errors derive from problems with the instruments used (inadequate calibration, unvalidated devices, etc) as much as from inappropriate procedures.

Objective: Assessment of nursing students Knowledge and Practices regarding blood pressure measurement.

Method: Descriptive Study conducted on 90 students were selected from fourth academic year in the nursing college / University of Kirkuk. from 1st of October, 2015, up to the 30th of February, 2016. The study was carried out in the nursing college. The assessment degree was (yes or no), Observation of each subject of the sample during the measurement and fill in the scale sheet, each interview lasted (10) minutes, and SPSS program was used to analyze the data by Percentage and Frequency.

Results: (82%) of the sample did not apply fully measurement steps and the female students were somewhat better than male .The study results showed that the highest percentage(80%) of study samples is of age group(21-23)years (82%)of them were female, All of nursing student' have taken session about blood pressure measurement, Nursing student's had not adequate initial communication that (44%)of them Explain to the patient what will be done and (56%) of them not explain, Nursing student's had good knowledge about roll up the sleeve of the patient's garment so that no material will be under cuff (80%),,Nursing student's had good practice in Record where sound disappear (76%),poor skill in offer the patient an opportunity to ask questions(79%).

Conclusion: most of the sample had a deficiency in the performance of some of the steps to be followed in the process of measuring blood pressure and specifically in the manual skills and female students were better than males somewhat. So should be review the teaching curriculum of the undergraduate nursing skills and concentrate on the importance of skill training.

Recommendation: increase number of practice hours in the hospital for students by supervised of teachers and Educational sessions should be designed to increase student's knowledge about measurement of blood pressure. Providing scientific booklet with picture to increase student's knowledge. Further study has to be conducted in all students of our college. Examine the students in end of years about measurement of vital signs.

Keywords :- Knowledge, Practice ,Nursing college Students ,Blood pressure

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INTRODUCTION

Blood pressure (BP) measurement is a frequent, basic clinical procedure. However, studies have shown measurement errors derive from problems with the instruments used (inadequate calibration, un validated devices, etc) as much as from inappropriate procedures. ⁽¹⁾. Measuring arterial blood pressure provides important information about the overall health status of the patient, for example, the systolic pressure provides a data base about the condition of the heart, arteries and the arterioles. The diastolic pressure indicates vessel resistance, the difference between the systolic and diastolic pressure provides information about cardiac output. The pressure exerted on the arteries when the heart is beating is called the “systolic” blood pressure; this is the number at which sounds are first heard through the stethoscope .The pressure present in the arteries when the heart in state of no pumping is termed the “diastolic” blood pressure which is the pressure when sounds are last heard with the stethoscope. The blood pressure is expressed as the systolic pressure over the diastolic pressure. Blood pressure increases as we age but the number generally regarded as normal is 120/80mmgh ⁽²⁾.

Blood Pressure determination continues to be one of the most important measurements in clinical medicine, but is one of the most inaccurately performed. The gold standard for clinical BP measurement has always been readings taken by a trained health care provider, using the auscultatory method. The impact of untreated or poorly treated hypertension on the health of patients is a major contributor to the overall burden of adult diseases in any population .The impact of poorly controlled hypertension may however, be avoided if early detection and cost-effective management of the condition occurs. For BP measurements to be meaningful, standardized and reproducible, protocols or guidelines of measurement are essential. Various studies abroad however indicated a deficit in the knowledge of guidelines and skills related to the measurement of BP ⁽³⁾.

Hypertension is a cardiovascular disorder; the epidemiology differs immensely amongst different populations of the world, accounting for 95% to 99 % of all cardiovascular disorders reported. Limited information is available concerning the knowledge and skill of nurses in South Africa (SA) regarding the correct measurement of

BP when using a sphygmomanometer and the auscultatory method. In light of the significant role that the nurse plays in determining patients' BP in the clinical setting and the importance of knowledge and skill in the correct measurements of BP, the aim of this study is two-fold. Firstly, to determine nurses' knowledge and skill of correct BP measurement techniques, and secondly, to investigate if a correlation exists between nurses' knowledge of BP measurement technique and their actual skill of BP measurement (4).

An instrument called a mercury (Hg) manometer, measures BP in millimeters of mercury (mm Hg). Healthcare professionals most often use the auscultatory method to measure BP. The technique involves wrapping a cuff connected to a sphygmomanometer around the patient's arm just above the elbow and placing a stethoscope over the brachial artery. The cuff is inflated until the brachial artery is completely occluded. The pressure in the cuff is then gradually lowered to allow blood flow to return. As the blood flows, it produces vibrations that may be heard through the stethoscope. These sounds are called Korotkoff sounds (5).

Elevated arterial blood pressure is a major cause of premature vascular disease leading to cerebrovascular events, ischemic heart disease and peripheral vascular disease. Hypertension is very common in the developed world. Depending on the diagnostic criteria hypertension is present in 20% -30% of the adult population. Hypertension rates are much higher in black Africans 40 -45 % of adult (6).

Patients with hypertension die prematurely; the most common cause of death is heart disease, with stroke, and also renal failure frequent (7).

Arterial stiffness is increasingly recognized as an important prognostic index and potential therapeutic target in patients with hypertension. It is known as a silent killer for it rarely has obvious symptoms, but in light of the many serious effects (such as stroke, end-stage renal failure and heart attacks) it is crucial to accurately obtain BP measurements. Several studies indicate that measurement technique might not always be based on best practices (8).

While defined Secondary hypertension as high blood pressure related to identifiable cause. This cause includes narrowing of the renal arteries, renal parenchymal disease, hyperaldosteronism, certain medication, pregnancy and coarctation of aorta (9).

Primary Hypertension accounts for 95% of all cases of hypertension, with the onset usually between the ages of 30- 50 years. Although the exact cause of primary hypertension is unknown, several contributing factors including increase sympathetic nervous system (SNS) activity, over production of sodium-retaining hormones and vasoconstrictors, increased sodium intake, greater than ideal weight, diabetes mellitus and excessive alcohol intake have been identified (10).

- hypertension is responsible for more deaths and disease than any other biomedical risk factor worldwide (11).
- Stressors at home and on the job (12).
- Role relationship and associated stressors (13).

Life- style factors were very important causes in the rate of death in 2009, it forms (53%) of death among people in the world.

Unhealthy life style includes an alarming increase in the incidence of diabetics, hypertension, and obesity, cardiac and chronic respiratory disorders.

A number of condition precipitate hypertension in predisposing individuals, the best documented is obesity, which is associated with an increase in intravascular volume and an appropriately high output. The relationship between sodium intake and hypertension remains controversial. But by no means all hypertensive's respond to high salt intake with substantial blood pressure increase. Excessive alcohol also raises blood pressure by increasing plasma catecholamines. Cigarette smoking acutely raises blood pressure, again by increasing plasma norepinephrine, and the relationship of exercise to hypertension is variable, Aerobic exercise lowers blood pressure in previously sedentary individuals. The relationship between stress and hypertension is not clearly established. Low potassium intake is associated with high blood pressure in some cases ⁽¹⁴⁾.

OBJECTIVES OF THE STUDY

To Assessment of nursing students Knowledge and Practices regarding blood pressure measurement

METHODOLOGY

Quantitative design (descriptive study) was conducted at Kirkuk hospital from October 1st 2015 up to February 16th 2016 to Assessment of nursing student's skills and knowledge regarding blood pressure measurement. The present study was conducted at Kirkuk hospital (medical and surgical ward) in Kirkuk city . A non-probability (purposive) sample of (90) Nursing students in fourth stage, selected according to following criteria, nurses student with only fourth stages, male and female. Through extensive review of relevant literature, a questionnaire was

Constructed for the purpose of the study with observational check list. Overall items included in the questionnaire were (26) items .All items were measured on two levels Yes (2) and No (1) the questionnaire consists of two parts:-

Part I It is composed of (2) items that represent the demographic data of nurse student such as age, gender and taken classes about blood pressure.

Part II / This part included (23) items which is concerned with the following: A- Initial communication skills (2) items. B- Knowledge skills (6) items.

C- Manual skills (12) items. D- Final communication skills (3) items.

Validity refers to the degree to which an instrument measures what is Supposed to measure. The content validity of the questionnaire was determined through a panel of (10) experts. The data were collected through observational check list, with nurse student. The data collection process was performed from the period during of 1st February up to the beginning October 2016. Observational checklist took (10) minutes for each nurse student.

Consent informed was granted from nurse student for participation in the present study was obtained. Data were analyzed through the application of the descriptive Statistics analysis which include Frequencies (F), Percentages (%)

RESULTS:

Table(1) Distribution of the samples regarding gender of (90) nurse student .

NO.	Gender	Frequency	Percentage %
1	Male	16	18%
2	Female	74	82%
Total		90	100%

Table (1) shows that (82%) of the samples were females, 18% males

Table(2) Distribution of the samples regarding taken classes about blood pressure

NO	Taken session about blood pressure?	Frequency	Percentage
1	Yes	90	100
2	No	0	0
Total		90	100%

Table (2) shows that (90%) of the samples were taken session about blood pressure.

Table (3) Initial communication skills of nursing student

No	Initial communication skills	Yes		No		MS
		F	%	F	%	
1	Explain to the patient what will be done	40	44	50	56	1.4 MS
2	Explain blood pressure in a language the patient can understand	39	43	51	57	1.4 MS

Table (3) shows that the samples had poor Initial communication skills.

Table (4) Students practices regarding the steps of measuring blood pressure

No	Knowledge skills	Yes		No		MS
		F	%	F	%	
1	Check the size of blood pressure cuff	33	37	57	63	1.3 MS
2	Hold the width of the cuff against the diameter of the arm	26	29	64	71	1.2 LS
3	Select a cuff of an appropriate size approximately 20% greater than the arm diameter	25	28	65	72	1.2 LS
4	Roll up the sleeve of the patients garment so that no material will be under the cuff	72	80	18	20	1.8 HS

5	Center the cuff bladder over the brachial artery	81	90	9	10	1.9 HS
6	Position and support the arm at the heart level	78	87	12	13	1.8 HS

Table (4) shows that the samples had good knowledge in items (Roll up the sleeve of the patients garment so that no material will be under the cuff, Center the cuff bladder over the brachial artery, Position and support the arm at the heart level) .

Table (5) Observational Checklist for nursing students during measuring the blood pressure

No	Manual skills	Yes		No		MS
		F	%	F	%	
1	Take a radial pulse	9	10	81	90	1.1 LS
2	Palpate the radial or brachial artery	78	87	12	13	1.8 HS
3	Inflate the cuff until the arterial pulse can no longer be felt	80	89	10	11	1.8 HS
4	Inflate the cuff 10mmhg higher	55	61	35	39	1.6 HS
5	Deflate the cuff at a rate no more than 3mmhg/ second	20	22	70	78	1.2 LS
6	Record arterial pulse again palpated	18	20	72	80	1.2
7	Deflect the cuff completely	66	73	24	27	1.7
8	Wait 30 second allowing the arm to rest	2	2	88	98	1.0 LS
9	Reposition the arm at the heart level	28	31	62	69	1.3 MS
10	Place the diaphragm of the stethoscope over the brachial artery	36	40	54	60	1.4 MS
11	Inflate the cuff to 20 mmgh above palpatory pulse	30	33	60	67	1.3 MS
12	Record where first heart sound is heard	73	81	17	19	1.8 HS
13	Record where sound disappear	68	76	22	24	1.7 HS
14	Replace the arm at rest	55	61	35	39	1.6 HS
15	Offer the patient an opportunity to ask questions	19	21	71	79	1.2 LS

Table (5) shows that the samples had good practice e in items (Palpate the radial or brachial artery, Inflate the cuff until the arterial pulse can no longer be felt, Inflate the cuff 10mmhg higher, Deflate the cuff at a rate no more than 3mmhg/ second, Deflect the cuff completely, Record where first heart sound is heard , Record where sound disappear and Replace the arm at rest) .

DISCUSSION

The socio-demographic characteristic for students was about high percentage were female and constitute (82%) related to the system in ministry of higher education and scientific research in coordinate with the ministry of health about need for female more than male in our hospitals because ministry of health find the male number larger than female in hospitals there recommended to increase number of female in nursing college.

Regarding to Initial communication skills of nurse student shows that the samples had good knowledge in items (Roll up the sleeve of the patients garment so that no material will be under the cuff, Center the cuff bladder over the brachial artery, Position and support the arm at the heart level).

The construes of this result may be related to neglect of the students in accept good knowledge about vital signs in scientific way for appear 56% not explain about it.

Nurses are responsible for the monitoring and assessment of blood pressure (BP) in the clinical setting, and accurate measurement of BP is considered paramount in the management of cardiovascular risks. Despite advances in the monitoring of BP, knowledge of BP measurement is still poorly understood in both the medical and nursing professions (15).

The study shows that (90%) of the samples were taken session about blood pressure.

Our result show highly percentage (90 %) were taken classes about blood pressure the explanation of our result related to the system of the Nurses College in our country which permit to the students to teach the vital signs during second stage from college

56% from samples do not explain to the patient what will be done and 57 % do not explain blood pressure in a language the patient can understand

The explain of the result about poor Initial communication practice between patients and student which related to the level of culture to the student or may related to the decrease communication skills for student to deal with the patients in a good communications

With respect Knowledge and practice of nurse student the samples had good knowledge in items Roll up the sleeve of the patients garment so that no material will be under the cuff, Center the cuff bladder over the brachial artery and Position and support the arm at the heart but poor knowledge in Check the size of blood pressure cuff, Hold the width of the cuff against the diameter of the arm and Select a cuff of an appropriate size approximately 20% greater than the arm diameter

Graciani and others (2008) mention the most BP measurement errors lead to overestimation. This can bring about unnecessary treatment, with exposure to the adverse effects of the drugs. Moreover, diagnosis of hypertension, and the consequent labeling of patients as hypertensive, is associated with lower quality of life and greater absenteeism at work.. In some cases, however, inadequate measurement underestimates BP, making continuous control of pressure difficult to maintain. This is important because BP is the gateway to managing cardiovascular risk, the primary cause of death in Spain after tobacco use (16).

Stibich (2010) reported that mistakes are common in BP measurement and recommended that equipment be regularly checked to make sure that the cuff is in good working order and the stethoscope clean and effective. It is also suggested that the health care provider immediately record the BP reading after measurement instead of trying to

remember it and recording it later. In the light of the significant role that training and retraining of health care providers plays in decreasing error in BP measurement ⁽¹⁷⁾.

The construes of this result may be related to think some students the size of cuff do not effects on reading of blood pressure or may related to poor knowledge in measurement of blood pressure also in other side the neglected some students.

(Schrauf, 2012) noted that many operators have a preference for ending numbers in 0 or 5 for BP readings, leading to lowering or rising by 2 to 3 mmHg in both, respectively. In addition, operators tend to round down the numbers if the person being measured appears healthy and to round up if the person appears overweight or unhealthy. The authors also stated that rapid inflation and deflation of the cuff by the operator may lead to artificially lower systolic and higher diastolic numbers ⁽¹⁸⁾.

According to Manual skills of blood pressure measurement Observation check list nurse student the samples had good knowledge in Palpate the radial or brachial artery, Inflate the cuff until the arterial pulse can no longer be felt, Inflate the cuff 10mmhg higher, Deflect the cuff completely Record where first heart sound is heard and poor knowledge in Deflate the cuff at a rate no more than 3mmhg/ second, Inflate the cuff to 20 mmhg above placatory pulse Reposition the arm at the heart level, Place the diaphragm of the stethoscope over the brachial artery, Inflate the cuff to 20mmhg above palpatory pulse

Rabello and others (2009) mention the inadequate knowledge of correct BP measurement procedures is unlikely to improve during specialized postgraduate training or in-service courses because it is a basic clinical procedure students are assumed to have learned in Health Science faculties. Surprisingly, as in studies published more than fifteen years ago ⁽¹⁹⁾.

The interpret of this result related to some students do not have enough knowledge or may be neglect some steps which consider it as a long way for measuring blood pressure.

The study shows that the samples had good skill in item Record where sound disappear, Replace the arm at rest While poor skills in item and offer the patient an opportunity to ask questions . Interpret this result related to students always verify listen sound of blood

CONCLUSIONS:

1. Majority of the students where were female and constitute (90%) of the them were taken classes about blood pressure.
2. Most of the students had poor Initial communication skills
3. As a general most of the students had poor knowledge in skills of measurement of blood pressure

RECOMMENDATIONS:

1. Based on the present study conclusions, it can be recommended that:
2. Educational session should be designed to increase student's knowledge about measurement of blood pressure.
3. Providing scientific booklet with picture to increase student's knowledge.
4. Further study has to be conducted in all students of our college.
5. Examine the students in end of years about measurement of vital signs.

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