Assessment of Nurse's Knowledge toward Common Mistakes in Blood Pressure Measurement at Baghdad Teaching Hospital

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Abstract

The study aims to assess the nurse's knowledge toward common mistakes in blood pressure measurement, and to find out the relationship between nurse's knowledge toward common mistakes in blood Pressure measurement and demographic characteristics . An quantitative descriptive design has been used for this study. The study starting during the period between the Nov.30, 2019 to May.30. 2020. Purposive sampling technique was selected. The sample consisted of (60) nurses. The study instrument was composed two parts: The first part is concerned with the demographic characteristics, and the second part includes nurses' knowledge. Content validity ofthe instrument was established through panels of (10) experts. Results have analyzed through the use of SPSS ''Statistical Package for Social Sciences'' model 24.0 by using descriptive and inferential statistical method. Finding of the present study revealed that the overall, nurse's knowledge was poor , false nurse's knowledge include13 domains of 14 domains, female nurses had more knowledge in most domains than male, the age range (28-37) has more knowledge, majority of nurse's knowledge were associated with high education level, years of experience rang(6-10), and nurses who work at CCU unit had more knowledge toward common mistakes in blood pressure measurement.

Keywords: *Blood pressure measurement, knowledge, Mistakes, Blood Pressure*

Introduction

Hypertension is diagnosed if, when itis measured on two different days, the systolic blood pressure readings on bothdays is ≥140 mmHg and/or the diastolic blood pressure readings on both days is

≥90 mmHg [(1)]. blood pressuremeasurement (BPM) is considered a generic skill required in nursing, by a range of health professionals, for effective health assessment [(2)].The accurate measurement of blood pressure (BP) is essential for the diagnosis and managementof hypertension [(3)]. Critical components of (BP) assessment include use of an accuratedevice and an appropriate setting along with proper preparation of the subject and consistent use of a recommendedstandardized measurement technique [(4)]. The sphygmomanometer is a well-known device used widely for blood pressure (BP) measurement in primary cares to diagnose hypertension [(5)].

Methodology

A descriptive design was accomplishedin order to inspect nurse's knowledgetoward common mistakes in blood pressure measurement at Baghdad Teaching Hospital. purposive (non probability) sample of (60) nurses were selected, The distribution of nurses: (15) nurses from medical wards, (12) nurses from surgical ward, (3)from CCU ,(16) from cardiac ward and, (14) nurses from neuro ward.The content validity of the study instruments are established through apanel of (10) experts, they were (5) from medical ward in Baghdad Hospital, and (5) from college of nursing/university of albayan. Test-retest has been obtained throughout evaluating 10 patients selected from Baghdad Teaching Hospital (medical wards) According to the knowledge testquestionnaire, and Pearson correlation coefficients is used which = (0.84). Data have been analyzed through the use of simple statistical analysis and theinferential analysis that include: Analysis of variance and the researcher used the SPSS version 24.0 to analysis of data.

Results

Table (1) Distribution of the Nurses According to Demographic Characteristics

Variables			Total
Nurses' Age Group	*F.	**%	
18-27 years	31	51.6	60(100%)
28-37 years	23	38.3	
38-47 years	4	6.6	
48-57 years	2	3.3	
Nurses' Gender	*F.	**%	Total
Male	24	40	60(100%)
Female	36	60	
Nurses' Level of Education	*F.	**%	Total
Secondary school graduate	23	38.3	60(100%)
Institute graduate	24	40	
College graduate	11	18.3	
Postgraduate Level	2	3.3	
Nurses' Years of Experience	*F.	**%	Total
1-5 Years	30	50	60(100%)
6-10 Year	11	18.3	
11-15 Year	9	15	
16-20 Years	7	11.7	
21 and more	3	5	
Working Ward	*F.	**%	
Medical	15	25	60(100%)
Surgical	12	20	
Coronary care unit (CCU)	3	5	
Cardiac	16	26.7	
Neuro	14	23.3	

*F. = Frequency, **% = Percent

Table (1) revealed that the majority of sample (31(51.6%) were at age (18-27) years old**,** majority 36(60%) of sample were females, majority 24(40%) of them graduated from instituted level, majority 30 (50%) of them had 1-5 years of experiences, and majority of nurses(16(26.7)working at cardiac ward.

Table (2) Distribution of Nurse's Knowledge towards Common Mistakes of BloodPressure Measurement

No.	Questions	Correct	Wrong
		F*	F*
1	Cuff too wide	(0.37)22	(0.63)38
2	Cuff too narrow or too short	(0.3)18	(0.7)42
3	Cuff wrapped too loosely or unevenly	(0.17)10	(0.83)50
4	Deflating cuff too slowly	(0.05)3	(0.95)57
5	Deflating cuff too quickly	(0.07)4	(0.93)56
6	Arm below heart level	(0.23)14	(0.77)46
7	Arm above heart level	(0.25)15	(0.75)45
8	Arm not supported	(0.22)13	(0.78)47
9	Stethoscope applied too firmly against antecubital fossa	(0.03)2	(0.97)58
11	Inflating cuff too slowly	(0.08)5	(0.92)55
12	Repeating assessments too quickly	(0.13)8	(0.87)52
13	Inaccurate cuff inflation level	(0.15)9	(0.85)51
14	Drink water before BP measurement	(0.58)35	(0.42)25
15	Movement left arm during measurement BP from right arm	(0.45)27	(0.55)33

Table (2) revealed that majority of answers were false (13) domains, while majority of truenurse's answers were (35(0.58%) in item (13).

Table (3) Comparison between Nurse's Knowledge According to Gender

No.	Question	Male		Female	
		True	False	True	False
		*F	*F	*F	*F
1	Cuff too wide	(0.37)9	(0.63)15	(0.58)21	(0.42)15
2	Cuff too narrow or too short	(0.37)9	(0.63)15	(0.75)27	(0.25)9
3	Cuff wrapped too loosely or unevenly	(0.08)2	(0.92)22	(0.78)28	(0.22)8
4	Deflating cuff too slowly	(0.04)1	(0.96)23	(0.94)34	(0.06)2
5	Deflating cuff too quickly	(0.13)3	(0.88)21	(0.97)35	(0.03)1
6	Arm below heart level	(0.42)10	(0.58)14	(0.89)32	(0.11)4
7	Arm above heart level	(0.38)9	(0.63)15	(0.83)30	(0.17)6
8	Arm not supported	(0.08)2	(0.92)22	(0.69)25	(0.31)11
9	Stethoscope applied too firmly against antecubital fossa	(0)0	(100.0)24	(0.94)34	(0.06)2
10	Inflating cuff too slowly	(0.04)1	(0.96)23	(0.89)32	(0.11)4
11	Repeating assessments too quickly	(0.17)4	(0.83)20	(0.89)32	(0.11)4
12	Inaccurate cuff inflation level	(0.13)3	(0.88)21	(0.83)30	(0.17)6
13	Drink water before Bp measurement	(0.46)11	(0.54)13	(0.33)12	(0.67)24
14	Movement left arm during measurement BP from right arm	(0.54)13	(0.46)11	(0.61)22	(0.39)14

*F. = Frequency

Table (3) revealed that females have more knowledge in most domains than male.

Table (4) Comparison between Nurse's Knowledge According to Age Group

No	Question	27-18		37-28		47-38		57-48	
		True	False	True	False	True	False	True	False
		F*	F*	F*	F*	F*	F*	F*	F*
1	Cuff too wide	(45.2)14	(54.8)17	(65.2)15	(34.8)8	0	(100.0)4	0	(100.0)2
2	Cuff too narrow or too short	(35.5)11	(64.5)20	(26.1)6	(73.9)17	0	(100.0)4	0	(100.0)2
3	Cuff wrapped too loosely or unevenly	(19.4)6	(80.6)25	(8.7)2	(91.3)21	(25.0)1	(75.0)3	(50.0)1	(50.0)1
4	Deflating cuff too slowly	(3.2)1	(96.8)30	(8.7)2	(91.3)21	0	(100.0)4	0	(100.0)2
5	Deflating cuff too quickly	(3.2)1	(96.8)30	(8.7)2	(91.3)21	0	(100.0)4	(50.0)1	(50.0)1
6	Arm below heart level	(22.6)7	(77.4)24	(30.4)7	(69.6)16	0	(100.0)4	0	(100.0)2
7	Arm above heart level	(22.6)7	(77.4)24	(34.8)8	(65.2)15	0	(100.0)4	0	(100.0)2
8	Arm not supported	(19.4)6	(80.6)25	(26.1)6	(73.9)17	(25.0)1	(75.0)3	0	(100.0)2
9	Stethoscope applied too firmly against antecubital fossa	(3.2)1	(96.8)30	(4.3)1	(95.7)22	0	(100.0)4	0	(100.0)2
10	Inflating cuff too slowly	(12.9)4	(87.1)27	(4.3)1	(95.7)22	0	(100.0)4	0	(100.0)2
11	Repeating assessments too quickly	(12.9)4	(87.1)27	(17.4)4	(82.6)19	0	(100.0)4	0	(100.0)2
12	Inaccurate cuff inflation level	(19.4)6	(80.6)25	(13.0)3	(87.0)20	0	(100.0)4	0	(100.0)2
13	Drink water before BP measurement	(64.5)20	(35.5)11	(52.2)12	(47.8)11	(75.0)3	(25.0)1	0	(100.0)2
14	Movement left arm during measurement BP from right arm	(51.6)16	(48.4)15	(52.2)12	(47.8)11	0	(100.0)4	0	(100.0)2

*F. = Frequency

Table (4) revealed that nurses whose group (28-37) years has more knowledge and nurses whose group (38-47) years have lowest knowledge.

Table (5) Comparison between Nurse's Knowledge According to Level of Education

No.	Questions	Secondary		Institute level		Collage level		High education	
		True	False	True	False	True	False	True	False
		F*	F*	F*	F*	F*	F*	F*	F*
1	Cuff too wide	(21.7)5	(78.3)18	(29.2)7	(70.8)17	(72.7)8	(27.3)3	(100.0)2	0
2	Cuff too narrow or too short	(30.4)7	(69.6)16	(12.5)3	(87.5)21	(54.5)6	(45.5)5	(100.0)2	0
3	Cuff wrapped too loosely or unevenly	(21.7)5	(78.3)18	(20.8)5	(79.2)19	0	(100)11	0	(100.0)2
4	Deflating cuff too slowly	(8.7)2	(91.3)21	(4.2)1	(95.8)23	0	(100)11	0	(100.0)2
5	Deflating cuff too quickly	(4.3)1	(95.7)22	(4.2)1	(95.8)23	(18.2)2	(81.8)9	0	(100.0)2
6	Arm below heart level	(13.0)3	(87.0)20	(12.5)3	(87.5)21	(54.5)6	(45.5)5	(100.0)2	0
7	Arm above heart level	(13.0)3	(87.0)20	(25.0)6	(75.0)18	(36.4)4	(63.6)7	(100.0)2	0
8	Arm not supported	(39.1)9	(60.9)14	(8.3)2	(91.7)22	(18.2)2	(81.8)9	0	(100.0)2
9	Stethoscope applied too firmly against antecubital fossa	(8.7)2	(91.3)21	0	(100)24	0	(100)11	0	(100.0)2
10	Inflating cuff too slowly	(17.4)4	(82.6)19	(4.2)1	(95.8)23	0	(100)11	0	(100.0)2
11	Repeating assessments too quickly	(8.7)2	(91.3)21	(12.5)3	(87.5)21	(9.1)1	(90.9)10	(100.0)2	0
12	Inaccurate cuff inflation level	(13.0)3	(87.0)20	(20.8)5	(79.2)19	(9.1)1	(90.9)10	0	(100.0)2
13	Drink water before BP measurement	(52.2)12	(47.8)11	(58.3)14	(41.7)10	(63.6)7	(36.4)4	(100.0)2	0
14	Movement left arm during measurement BP from right arm	(39.1)9	(60.9)14	(37.5)9	(62.5)15	(63.6)7	(36.4)4	(100.0)2	0

*F. = Frequency

Table (5) revealed that the majority of nurse's knowledge was associated withhigh education knowledge level, while the lowest of nurse'sknowledge were associated with Institute education.

Table (6) Comparison between Nurse's Knowledge According to Years of Experience

No	Question	1-5 years		6-10 years		11-15 years		16-20 years		21 years and more	
		True	False	True	False	True	False	True	False	True	False
		F*	F*	F*	F*	F*	F*	F*	F*	F*	F*
1	Cuff too wide	(16.7)5	(83.3)25	(63.2)7	(36.8)4	(11)1	(89)8	(14)1	(86)6	0	(100)3
2	Cuff too narrow or too short	(26.6)8	(73.3)22	(26.1)3	(73.9)8	(33)3	(67)6	(14)1	(86)6	0	(100)3
3	Cuff wrapped too loosely or unevenly	(19.4)6	(80.6)24	(72.7)8	(27.3)3	0	(100)9	(37)2	(63)5	(34)1	(66)2
4	Deflating cuff too slowly	(3.2)1	(96.8)29	(8.7)2	(91.3)9	(22)2	(78)7	0	(100)7	0	(100)3
5	Deflating cuff too quickly	(16.7)5	(83.3)25	(45.5)5	(54.5)6	0	(100)9	(14)1	(86)6	0	(100)3
6	Arm below heart level	(23.3)7	(76.6)23	(63.2)7	(36.8)4	(11)1	(89)8	(29)2	(71)5	0	(100)3
7	Arm above heart level	(6.6)2	(93.3)28	(9.1)1	(90.9)10	0	(100)9	0	(100)7	0	(100)3
8	Arm not supported	(19.4)6	(80.6)24	(54.5)6	(45.5)5	(25)3	(75)6	0	(100)7	0	(100)3
9	Stethoscope applied too firmly against antecubital fossa	(3.2)1	(96.8)29	(36.8)4	(63.2)7	0	(100)9	(14)1	(86)6	0	(100)3
10	Inflating cuff too slowly	(23.3)7	(76.6)23	(54.5)6	(45.5)5	(11)1	(89)8	(37)2	(63)5	0	(100)3
11	Repeating assessments too quickly	(16.7)5	(83.3)25	(36.8)4	(63.2)7	(33)3	(67)6	0	(100)7	0	(100)3
12	Inaccurate cuff inflation level	(23.3)7	(76.6)23	(45.5)5	(54.5)6	(11)1	(89)8	0	(100)7	0	(100)3
13	Drink water before Bp measurement	(50)15	(50)15	(90.9)10	(9.1)1	(67)6	(33)3	(37)2	(63)5	(34)1	(66)2
14	Movement left arm during measurement BP from right arm	(70)21	(30)9	(72.7)8	(27.3)3	(33)3	(67)6	(14)1	(86)6	0	(100)3

Table (6) revealed that nurses whose years of experience group (6-10) years have more knowledge and nurses whose years of experience group(21 and more) have lowest knowledge

Table (7) Comparison between Nurse's Knowledge According to Hospital Ward and CCU

No.	Question	Medical		Surgical		CCU		Cardiac		Neuro	
		True	False	True	False	True	False	True	False	True	False
		*F	*F	*F	*F	*F	*F	*F	*F	*F	*F
1	Cuff too wide	(40)6	(60)9	(80)1	(92)11	(100)3	(0)0	(31)5	(69)11	(50)7	(50)7
2	Cuff too narrow or too short	(33)5	(67)10	(17)2	(83)10	(100)3	(0)0	(25)4	(75)12	(29)4	(71)10
3	Cuff wrapped too loosely or unevenly	(7)1	(93)14	(33)4	(67)8	(0)0	(100.0)3	(6)1	(94)15	(29)4	(71)10
4	Deflating cuff too slowly	(7)1	(93)14	(0)0	(100)12	(0)0	(100.0)3	(12)2	(88)14	(0)0	(100)14
5	Deflating cuff too quickly	(7)1	(93)14	(8)1	(92)11	(67)2	(33)1	(0)0	(100)16	(0)0	(100)14
6	Arm below heart level	(27)4	(73)11	(0)0	(100)12	(67)2	(33)1	(38)6	(62)10	(14)2	(86)12
7	Arm above heart level	(27)4	(73)11	(25)3	(75)9	(67)2	(33)1	(25)4	(75)12	(14)2	(86)12
8	Arm not supported	(20)3	(80)12	(17)2	(83)10	(0)0	(100)3	(19)3	(81)13	(36)5	(64)9
9	Stethoscope applied too firmly against antecubital fossa	(70)1	(93)14	(0)0	(100)12	(0)0	(100)3	(0)0	(100)16	(7)1	(93)13
10	Inflating cuff too slowly	(13)2	(86)13	(0)0	(100)12	(0)0	(100)3	(19)3	(81)13	(0)0	(100)14
11	Repeating assessments too quickly	(27)4	(73)11	(17)2	(83)10	(33)1	(67)2	(0)0	(100)16	(7)1	(93)13
12	Inaccurate cuff inflation level	(33)5	(67)10	(25)3	(75)9	(0)0	(100)3	(0)0	(100)16	(7)1	(93)13
13	Drink water before BP measurement	(73)11	(27)4	(42)5	(58)7	(33)1	(67)2	(38)6	(63)10	(86)12	(14)2
14	Movement left arm during measurement BP from right arm	(40)6	(60)9	(50)6	(50)6	(100)3	(0)0	(50)8	(50)8	(29)4	(71)10

*F. = Frequency

Table (7) revealed that the nurses who work at CCU have more knowledge than other nurses who work at hospital wards regarding blood pressuremeasurement

Discussion

In the present study, the majority of sample (31(51.6%) were at age (18-27) years old, majority (36(60%) of sample were females, majority (24(40%) of them graduated frominstituted level and majority (30 (50%) of them had 1-5 years of experiences (Table-1-). Block and others (2018) indicated that (98) of participants were female, (73%) were younger than age (46(72%) were (22%) were registered nurses(RNs) and (7%) were licensed practical nurses (LPNs). Most (52%) were in their current job at least 3 years. (Table-2-) revealed that majority of answers were false (13) domains,while majority of true nurse's answers were (35(0.58%) in item number (13)that include(Drink water before BP measurement).Hassan and others (2020) revealed that the resultof answers of questions was rest at least 5 minutes prior to reading B.P (43.80%) have correct answer and (53.20) incorrect answer, arm at heart level during recording B.P (53.70) have correct and (44.80) incorrect, device at eye sight level (40.80%) correct (59.20%) incorrect, use of appropriate cuff size (45.30%) correct (54.70%) incorrect. Moreover (Table-3-) revealed that females has more knowledge inmost domains than male. Mohammed (2016) indicated that the female students were somewhat better than male. (Table-4-) revealed that nurses whose group (28-37) years has more knowledge and nurses whose group (38-47) years have lowest knowledge. Block and others (2018) demographic factors including age, gender, race and ethnicity were not associated with higher scores. (Table-5-) revealed that the majority of nurse's knowledge were associated with high education knowledge level, while the lowest of nurse's knowledge were associated with Institute education. Hameed and Allo (2018) revealed that there were significant statistical differences in nurses' techniques of blood pressure measurement in regard to their educational level. Our study revealed that nurses whose years of experience group (6-10) years have more knowledge and nurses whose years ofexperience group (21 and more) have lowest knowledge (Table -6-). Block and others (2018) revealed that nurses and staff who had been in their current job at least a year were more likely to answer questions correctly than registered nurses and those in their current job less than a year. From another side, the (Table-7-) revealedthat the nurses who work at CCU have more knowledge than other nurses who work at hospital wards regarding blood pressure measurement. Hammed and Allo (2018) indicated that the place of work (ward) indicate significant statistical differences in association with. Nurses in CCU and artificial kidney ward show significant statistical differences in theirBP measurement techniques in comparison with the nurse's techniques in other wards.

Conclusion

According to our study , the results of this study reported that most of nurses aged (18-27) years,majority of them nurses were female ,their level of education was institute , their experience were (1-5)years and the most nurse's work in cardiac ward.The study identified deficit in nurse's knowledge toward common mistakes in Blood Pressure measurement, false nurse's knowledge include 13 domains of 14 domains, female had more knowledge in most domains than male, nurses aged (28-37) had more knowledge, majority ofnurse's knowledge were associated with high education level, years of experience rang (6- 10), and nurses in CCU had more knowledge toward common mistakes in blood Pressure measurement.

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Conflict of Interest: None to declare.

Ethical Clearance: "All experimental protocols were approved under the Albayan University were carried out in accordance with approved guidelines".

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