

Nurses' Knowledge Concerning Neuroblastoma in Children at Oncology Units in Baghdad

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Abstract: Specialized pediatric nurse must be equipped with necessary knowledge to fulfill her role in giving appropriate care need it. Deficient knowledge affect the outcome as health care providers. A descriptive (cross-sectional) study was carried out to assess the knowledge of nurses and its relation with their demographic characteristics (age, gender and level of education) toward Neuroblastoma in children at oncology wards of pediatric hospitals in Baghdad/ Iraq for the period from 30th Sep. 2013 up to 1st of April 2014. A designed questionnaire for this study was used (reliability and validity were determined through panel of experts) to achieve the objectives of the study. After the statistical analysis, the result showed significant association between knowledge and variables. Therefore, the study suggested establishing new standard programs throughout the year and on regular basis suitable for nurses concerning neuroblastoma in children.

Keywords: Nurse, Assessment and Neuroblastoma

I. Introduction:

Cancer in children and adolescents not, like in adults, is rare, although the overall incidence of childhood cancer has been slowly increasing during the last decade (Smith MA, et al.2014). Neuroblastoma is the second most common solid tumor in childhood, and it makes up 8% of the total number of children's cancers. The term Neuroblastoma refers to being a cancer that develops from immature nerve cells found in several areas of the body (Moris, et al.2007). It is a common extra cranial solid cancer in childhood. It is commonly affect children at age 5 years or younger, though it may rarely occur in older children. Nearly half of cases occur in children younger than two years and occur slightly and more frequently in boys (Sassi J, 2007).

Children with neuroblastoma and their families have special needs (American Cancer Society 2004). These needs can be met best by well qualified health staff whom trained to be specialists in this field. These specialists must understand the differences between cancers in adults and those in children (American Cancer Society 2015), as well as the unique needs of younger people with cancer. Treating neuroblastoma is complex and often requires the expertise of many different doctors, nurses, and other health professionals. Child's individual situation is well known to them and they can give more detailed information to the parents to cope with their child's condition.

All around the world, important researches about neuroblastoma is under way right now and each year. Scientists investigate the causes and how to improve treatment of the disease. Therefore, the knowledge and skills of nurses working with children having neuroblastoma considered of high importance to improve the treatment modalities and cope with progress going on in the world (Abeloff MD, et al.2008).

Statement of the study: Assessment of nurses knowledge toward neuroblastoma in children at oncology units in Baghdad pediatric teaching hospitals.

Objectives of the study:

1. To assess nurses knowledge toward children having Neuroblastoma at oncology units.
2. To find the relationships between nurses knowledge and demographic characteristics such as (age, gender and level of education).

II. Methodology:

Design: A descriptive Study (cross – sectional) was carried out to assess the nurses knowledge toward Neuroblastoma in children at oncology units in Baghdad Pediatric Teaching Hospitals for the period from 15th November 2013 To the 15th of March 2014 . Formal agreements were obtained from both , Ministry of Higher Education and Scientific Research and Ministry of Health Baghdad/Iraq.

Setting: The Study Conducted at three hospitals in Baghdad/ Iraq. Baghdad Teaching Hospital, Child's Central Hospital and Children Welfare Hospital.

Sample: A non-probability (Purposive) sample was taken. It consisted of (60) nurses which comprised the whole nurses working at oncology wards at the three hospitals selected for this study without any excluding.

Study Instrument: A questionnaire format was constructed through extensive review of available literature and related studies. It was consisted of two parts: Demographic characteristics and structured items concerning nurses knowledge of neuroblastoma in children. Reliability and validation was gained by a group of experts in the field.

Data Collection: A direct interview with the nurses was held by the investigators whom are working at oncology units according to the items of the questionnaire designed for this purpose. Each session of interview took around 20-30 minutes.

Statistical analysis : Data were analyzed through the application of statistical procedures and using the package of SPSS version19. Descriptive statistical approach (frequency and percentage), Mean, Standard deviation and correlation were adopted for analysis.

III. Findings and Results:

Table 1: Participants' Socio-demographic characteristics

List	Variables	Frequency	Percent
1	Age: Mean (SD): 32.98 (8.339)		
	20-30	32	53.3
	31-40	19	31.7
	40-50	5	8.3
	>50	4	6.7
2	Sex		
	Male Female	25 35	41.7 58.3
3	Marital Status		
	Married	39	65.0
	Not married Widowed	18 3	30.0 5.0

Table 1: Continued

List	Variables	Frequency	Percent
4	Level of Education		
	Nursing College	18	30.0
	Nursing Institute	21	35.0
	Preparatory Nursing School Nursing School	12 9	20.0 15.0
5	Participation in training courses		
	Yes No	49 11	81.7 18.3
5.1	Number of training courses		
	1	9	15.0
	2	15	25.0
	3	15	25.0
	>3 Missing Value	13 8	21.7 13.3
5.2	If yes,		
	Inside Iraq Outside Iraq	49 6	100.0% 12.5%
6	Years of experience (Years)		
	< 1	6	10.0%
	1-3	22	36.7%
	4-6	18	30.0%
	7-9 ≥ 10	5 9	8.3% 15.0%
7	Type of family		
	Nuclear Extended	41 19	68.3% 31.7%

Table 1: Continued

List	Variables	Frequency	Percent
8	Number of family members: Mean (SD): 6 (3.43)		
	1-3	8	13.3%
	4-6	33	55.0%
	7-9	12	20.0%
	≥ 10	7	11.7%
9	Number of rooms		
	1	28	46.7%
	2-3	25	41.7%
	4-5	7	11.6%
10	Type of house		
	Own	36	60.0%
	Rent	18	30.0%
	Shared	6	10.0%
11	Household Assets		
	Computer	8	13.3%
	Computer and Internet	38	63.3%
	Car	8	13.3%

Table (1) demonstrates that respondents' mean age is 32.98 ± 8.339 , more than half of them is in the 20-30 years-old age group ($n= 32$; 53.3%), more than half of them is female ($n= 35$; 58.3%), most of them is married ($n=39$; 65.0%), more than third of them held diploma in Nursing ($n=21$; 35.0%), the majority of them participated in training courses ($n= 49$; 81.7%), a quarter of them has 2 training courses, and the same proportion has 3 training courses ($n=15$; 25.0%), all of them reported that they participated in training courses inside Iraq ($n= 49$; 100.0%), more than third of them has 1-3 years of working in nursing ($n=22$; 36.7%), the majority of their families are nuclear ones ($n=41$; 68.3%), the mean of family members is $6 \pm 3.43\%$, more than half of these families consist of 4-6 persons ($n=33$; 55.0%), less than half of these families has one room in their houses ($n=28$; 46.7%), more than third of them has their own houses ($n=36$; 60.0%), and lastly, most of them reported that they've computer and internet service as household assets ($n=38$; 63.3%).

Table 2: Mean and Standard Deviation of Nurses' Knowledge related to Information about Neuroblastoma

List	Items	Mean (SD)	Sig.
1	This disease is called also tumor of	1.62 (0.490)	M
2	It is one of the diseases that create carcinogenic cells in neural tissue and they increased in spinal cord, neck and chest	1.57 (0.50)	M
3	This type of tumors doesn't appear in adolescence	1.13 (0.343)	P
4	Its microscopic appearance is usually similar to that of embryonic appearance for these cells	1.23 (0.427)	P
5	This disease is considered more prevalent and rooted in abdominal cavity	1.27 (0.446)	P
6	This type of tumors is considered as a stable and non mobile one	1.23 (0.427)	P
7	Neuroblastoma represents a ratio of 7-10% of the total pediatric tumors	1.15 (0.360)	P
8	Its incidence is increased slightly in male than in female	1.28 (0.454)	P
9	This disease is idiopathic, but it transferred through genes	1.25 (0.437)	P
10	This type of tumors appears in early childhood	1.20 (0.403)	P

Cut-off-point: 1-1.33= Poor; 1.34-1.67= Moderate; 1.68-2.0= Good

Table (2) demonstrates that nurses have little knowledge in the items 3, 7,10,4,6,9,5, and 8 respectively.

Table 3. Nurses' Level of Knowledge Related to Information about Disease

List	Level	Frequency	Percent
1	Poor	36	60.0
2	Fair	18	30.0
3	Good	6	10.0

Table (3) reveals that most of participants has poor knowledge concerning information about the disease ($n=36$; 60.0%).

Table 4: Participants' Knowledge Concerning Disease Signs and Symptoms

List	Items	Mean (SD)	Sig.
1	Of the most important symptoms are osteoalgia, general malaise, and shortness of breath	1.42 (0.497)	M
2	The tumor isn't accompanied by pain, but it starts in the last stages of the disease	1.27 (0.446)	P
3	The patient doesn't suffer from fever or subcutaneous bleeding	1.32 (0.469)	P
4	The affected child in unable to walk	1.25 (0.437)	P
5	The child gets muscular spasms and abdominal distension	1.33 (0.475)	P

Cut-off-point: 1-1.33= Poor; 1.34-1.67= Moderate; 1.68-2.0= Good

Table (4) describes that participants have little knowledge in the items 4, 2, 3 and 5 respectively.

Table 5: Signs and Symptoms Level of Knowledge

List	Level	Frequency	Percent
1	Poor	33	55.0
2	Fair	15	25.0
3	Good	12	20.0

Table (5) reveals that more than half of participants have poor knowledge concerning signs and symptoms of disease ($n=33$; 55.0%).

Table 6: Mean and Standard Deviation of Participants Knowledge about Stages of Disease

List	Items	Mean (SD)	Sig.
1	This disease includes five stages	1.15 (0.360)	P
2	In the first stage of disease, the tumor can be removed completely	1.37 (0.486)	M
3	In the fourth stage of disease, the tumor metastasizes to liver, subdermal and to bone marrow	1.32 (0.469)	P
4	The second stage of the disease is divided into two major branches; where the tumor cannot be removed completely in any branch	1.27 (0.446)	P
5	The disease metastasizes in the third stage to the lymph nodes	1.33 (0.475)	P

Cut-off-point: 1-1.33= Poor; 1.34-1.67= Moderate; 1.68-2.0= Good

Table (6) demonstrates that nurses have poor knowledge in the items 1,4,3 and 5 respectively.

Table 7: Level of Nurses' Knowledge about Stages of disease

List	Level	Frequency	Percent
1	Poor	36	60.0
2	Fair	12	20.0
3	Good	12	20.0

Table (7) describes that most of nurses have poor knowledge about the stages of disease ($n=36$; 60.0%).

Table 8: Mean Standard Deviation and Weighted Mean of Nurses' Knowledge concerning Disease Diagnosis

List	Items	Mean (SD)	Sig.
1	Chest X-ray is made if there is a likelihood of metastasizing tumor to the chest and to confirm its metastasis to the lung or the lymph gland in the chest	1.45 (0.502)	M
2	When the previous symptoms appear, physicians do not make a set of investigations and laboratory tests that include blood and urine	1.18 (0.390)	P
3	Bone marrow aspiration is made to detect the existence of tumor cells in the bone marrow	1.47 (0.503)	M
4	Ultrasonography is one of the diagnostic tests for the disease	1.45 (0.502)	M

Cut-off-point: 1-1.33= Poor; 1.34-1.67= Moderate; 1.68-2.0= Good

Table (8) describes that nurses have poor knowledge in the item 2.

Table 9: Level of Nurses' Knowledge about Disease Diagnosis

List	Level	Frequency	Percent
1	Poor	31	51.7
2	Fair	5	8.3
3	Good	24	40.0

Table (9) reveals that more than half of participants has poor knowledge about the disease diagnosis ($n=31$; 51.7%).

Table 10: Mean and Standard Deviation of Participants' Knowledge Concerning Disease Treatment

List	Items	Mean (SD)	Sig.
1	The patient is treated by surgery, chemotherapy and radiation	1.53 (0.503)	M
2	Bone marrow transplantation is made in some cases that receive high therapeutic doses	1.45 (0.502)	M
3	Therapeutic plans do not differ according to tumor and cases classification	1.23 (0.427)	P
4	Treatment method of this disease differs according to the type of existed symptoms on diagnosis, the tumor site, its concentration, vitality and stages	1.37 (0.486)	M
5	Chemotherapy isn't used in all cases of neuroblastoma	1.25 (0.437)	P
6	Radiation therapy is considered a local treatment and it is divided into internal and external ones	1.27 (0.437)	P
7	Radiation therapy has no any accompanying complications or side effects	1.18 (0.390)	P
8	Using each of chemotherapy and radiation therapy in some cases gives better results than in case of using one of them	1.37 (0.486)	M

Cut-off-point: 1-1.33= Poor; 1.34-1.67= Moderate; 1.68-2.0= Good

Table (10) demonstrates that participants have poor knowledge in the items 7, 3,5,6,4, and 7 respectively.

Table 11: Level of Nurses' Knowledge about Disease Treatment

List	Level	Frequency	Percent
1	Poor	28	46.7
2	Fair	12	20.0
3	Good	20	33.3

Table (11) reveals that less than half of participants have poor knowledge about treatment of the disease ($n=28$; 46.7%).

Table 12: Level of Nurses' Total Knowledge

List	Level	Frequency	Percent
1	Poor	37	61.7
2	Fair	21	35.0
3	Good	2	3.3

Table (12) describes that most of half participants have poor total knowledge about the disease ($n=37$; 61.7%)

IV. Discussion:

The Professional knowledge will provides a framework to the practice for nurses and reflects the application of cognitive aspects on the nursing care plan to each case. The quality of nursing practice reflects the quality of nurses' knowledge, kind of care the patients receive and the outcome.

Throughout the course of the present study, and as it has been shown in table (1), the majority of study participants demonstrate respondents' mean age is 32.98 ± 8.339 . More than half of them were in the 20-30 years-old age group ($n= 32$; 53.3%). Also, more than half of them were female ($n= 35$; 58.3%) and married ($n=39$; 65.0%). More than one third held diploma in Nursing ($n=21$; 35.0%), while the majority of them participated in training courses ($n= 49$; 81.7%), and a quarter of them had 2 training courses, and the same proportion had 3 training courses ($n=15$; 25.0%). All of them reported that they participated in training courses inside Iraq ($n= 49$; 100.0%). One third of the sample had from 1-3 years in nursing career ($n=22$; 36.7%). The majority of their families were nuclear ones ($n=41$; 68.3%), the mean of family members is $6 \pm 3.43\%$ and more than half of these families consisted of 4-6 persons ($n=33$; 55.0%), less than half of them had one room house ($n=28$; 46.7%), and one third owned their houses ($n=36$; 60.0%). Lastly, most of them reported that they've computers and internet services as household assets ($n=38$; 63.3%).

Results of the data analysis as shown in (table 2) demonstrated that the most nurses had little knowledge in types of tumors. Neuroblastoma represents a ratio of 7-10% of the total pediatric tumors. Type of tumors appears in early childhood, as mentioned by Franks LM and et al (1997). Its microscopic appearance is usually similar to that of embryonic appearance for these cells. Type of tumors is considered as a stable and non mobile one. This disease is idiopathic, but it transferred through genes. It considers more prevalent and roots in abdominal cavity. Its incidence increases slightly in males than in females. Brodner GM (1997) emphasized that neuroblastoma comprises 6-10% of all childhood cancers, and 15% of cancer deaths in children. The annual mortality rate is 10 per million children in the 0- to 4-years-old age group, and 4 per million in the 4- to 9-years old age group. It emphasized in (table 3) and showed that (60%) of the sample had poor knowledge.

Nurses' level of knowledge in relation to information about the disease revealed by (table 4 and 5). The results showed and indicated that the most of participants had poor knowledge (33%). This result was supported by Thompson, M., and et al.(2004). Since its inception, the nursing profession has continually endeavored to evolve so that individuals and communities could benefit from the care, knowledge, and skills of practicing nurses. Results of Nurses' Knowledge concerning signs and symptoms, the data analysis described that the participants had little knowledge in the items respectively (affected child is unable to walk, the tumor isn't accompanied by pain, but it starts in the last stages of the disease, the patient doesn't suffer from fever or subcutaneous bleeding). The child got muscular spasms and abdominal distension items. This result was supported by Ertle et al. (2008) who determined that neuroblastoma can present in various ways and the location of the tumor, along with the presence or absence of dissemination which leads to a wide spectrum of signs and symptoms. The results reveal that more than half of participants have poor knowledge concerning signs and symptoms of the disease ($n=33$; 55.0%).

Participants knowledge about the stages of the disease demonstrated in (tables 6 and 7) which declared that the nurses had poor knowledge (60%). This disease includes five stages. The second stage of the disease is divided into two major branches; where the tumor cannot be removed completely in any branch. In the fourth stage of disease, the tumor metastasizes to liver, sub-dermal and to bone marrow; The disease metastasizes in the third stage to the lymph nodes. The "International Neuroblastoma Staging System" (INSS) which established in 1986 and revised in 1988 stratifies neuroblastoma according to its anatomical presence at diagnosis. The results of this study revealed that the majority of nurses had poor knowledge about the stages of neuroblastoma.

Nurses' knowledge concerning diagnosis mentioned in (table 8 and 9). The majority of nurses have poor knowledge in this manner (51.7%). Stranger and et al. (2007) stated that the diagnosis is usually confirmed by a surgical pathologist, taking into account the clinical presentation, microscopic findings, and other laboratory tests.

Nurses' knowledge concerning disease treatment described in (table 10 and 11). The participants had poor knowledge in the items respectively, Radiation therapy has no any accompanying complications or side effects. Therapeutic plans do not differ according to tumor and cases classification. Chemotherapy isn't used in all cases of neuroblastoma. Radiation therapy is considered a local treatment and it is divided into internal and external ones, Chemotherapy agents used in combination have been found to be effective against neuroblastoma as stated by Gurney JG and et al. (2007). Treatment method of this disease differs according to the type of existed symptoms on diagnosis, the tumor site, its concentration, vitality and stages. Radiation therapy has no any accompanying complications or side effects.

As nurses' total knowledge and as shown in table (12), (67.1%) of the participants had poor knowledge, while and only (3.3) had good total knowledge. This will keep up with increasing cases of neuroblastoma globally and raise the standard of care given to children having this disease.

Finally, Table (13) demonstrated the number of training courses negatively correlates with participants' exposure to stress ($r=-0.272$; $P<0.01$). While, participants' information about the disease, knowledge about the signs and symptoms, about the stages of disease, diagnosis, and treatment positively correlate with the total knowledge ($r=0.764$, $P<0.05$) ($r=0.844$, $P<0.05$), ($r=0.813$, $P<0.05$), ($r=0.843$, $P<0.05$), ($r=0.877$, $P<0.05$) respectively.

V. Conclusion:

Relative to the discussion and interpretation of the study results, the study concluded the following:

- A. The results revealed that more than half of participants had poor knowledge about the diagnosis of the disease.
- B. Analysis of the study demonstrated that the most nurses had little knowledge in type of tumors .
- C. The results showed and indicated that most of participants had poor knowledge concerning information about the disease .
- D. More than half of participants had poor knowledge concerning signs and symptoms of disease .
- E. The majority of nurses had poor knowledge about the stages of disease .
- F. The results demonstrated that less than half of participants had poor knowledge about disease treatment.
- G . The number of training courses negatively correlated with participants' exposure to stress. While, participants' information about the disease, knowledge about the signs and symptoms, about the stages of disease, diagnosis, and treatment positively correlated with the total knowledge.

VI. Recommendations:

Depending on early stated conclusions, the present study recommended the following:

- Nurses should be encouraged to attend specific meetings, programs, workshops and seminars in concern of neuroblastoma treatment to be acquainted with the most recent, advances and skills in the field .

- Establishing a counseling center in both MCH centers and hospitals for nurses to guide and equip them with services in regard to knowledge toward neuroblastoma.
- Children and adolescents with neuroblastoma should be treated in collaboration with a team of health – care professionals including educators, nurses, mental health professionals and social workers.
- Conducting periodic monitoring of nurses knowledge and practice to evaluate the level of nurse's knowledge working in this field.
- Further studies to provide critical information concerning factors that influence Nurse's knowledge, with more concerns about other unstudied factors. Further studies should consider more generic measures of psychological and social functioning that are related to the life style of nurses.

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