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Assessment of Nurses' Knowledge about a Cyanotic Congenital Heart Disease in NICU at Pediatric Hospitals in Baghdad City

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Abstract: ***A descriptive study was carried out at children welfare hospital from period of 15 October 2015 to the 15 May 2016. The study aims to assess of nurses' knowledge concerning A cyanotic congenital Heart disease in NICU (neonatal intensive care unit) At pediatric hospitals in Baghdad. A purposive (no probability) sample of (36) nurses, they were working in NICU at three teaching hospital in Baghdad. A questionnaire was constructed for the purpose of the study.Data were collected through the application of questionnaire and interview techniques. Data were analyzed through descriptive statically approach (frequencies and percentages). The result of the study shows that the majority of sample (57.1%) and (60.0%) good knowledge about inability to properly feeding and difficulty breathing. and (82.9%) of sample do not know mother taking medication during the first trimester of pregnancy. (80.0%) of sample don't know genetics and being two types cyanotic and A cyanotic heart disease. (45.7%) have poor knowledge about excessive sweating even in cold. (82.9%) don't know increased heart rate and repeated respiratory infection. (82.9%) of Sample don't know that A cyanotic defect includes, Hole between the ventricles the Slot between the atria pulmonary Valve stenosis. (85.7%) of nurses has poor knowledge from the nursing care before the operation. (74.3%) don't know from nursing care after the operation. (60.0%) (82.9%) (88.0%) of study sample have poor knowledge about maintain the activity of the respiratory tract.(40.0%) (22.9%) of sample is uncertain about the knowledge of treatment. ln conclusion, the results reflect that most of the (54.3) accepted knowledge, (28.6) good knowledge, (17.1) poor knowledge. The investigators recommended. The research should include all of lard hospital. Increasing training courses for nurses to improve their knowledge about a cyanotic congenital heart disease.Instruction booklets about A cyanotic congenital heart diseases to improve their skills.***

Keywords: Nurses' Knowledge, Neonate, Intensive care unit

1. Introduction

Health of the child has been considered as the vital importance to all societies because children are the basic resource for the future of the humankind (ParulDatta, 2007).

Jones (2005) stated congenital heart disease is the most common birth defect but there have been great advances in the treatment of children with cardiovascular disease.

Cardiovascular disorders in children are divided into two major groups, congenital heart disease (CHD) and acquired heart disorders.

There are typically two classification system use to organized congenital heart defects. Traditionally, cyanosis, a physical characteristic,has been the distinguish feature, dividing anomalies in to a cyanotic defect and cyanotic defect. Amore useful classification system is based on hemodynamic characteristic (blood flow with in the heart) these blood flow patterns are: Increasing pulmonary blood flow, Decrease pulmonary blood flow, Obstruction to blood flow and Mixed blood flow.

Congenital heart defects occur in an estimated 1% of all pregnancies and one in every 170 live births.

More than 35 types of heart defects have been documented. Death from heart defect has declined dramatically over the past 50 years, and now approximately 85% of newborns with congenital heart disease are expected to survive to adulthood (Pediatric Nursing: caring of children 2008).

WONG (2013) Nursing care of the child with congenital heart defect begins as soon as the diagnosis is suspected. Prenatal diagnosis of congenital heart defect is becoming increasingly frequent.

Nursing care of the neonate with CHD incorporates knowledge based of the anatomy and physiology of CHD, surgical repair complications association with CHD.

Diagnostic testing, medical therapy and psychological support. The neonatal nurse is avital member of the cardiac team in providing accurate assessment, implementing medical therapy and supports the family (Meriec, 2001).

2. Methodology

A descriptive design was used in this study. The study was conducted in NICU of three hospitals in Baghdad city (child's center pediatric teaching hospital, children welfare pediatric teaching hospital and Al-Emamain Al-KadimainMedical City from the period from October 15th, 2015 to May 15th, 2016. A convenience sample of (36) nurses who working in NICU at three teaching hospitals in Baghdad city.

NICU of hospitals	Number of nurses
Children Welfare Pediatric Teaching Hospital	12
Child's Center Pediatric Teaching Hospital	12
Al-Emamain Al-KadimainMedical City	12
total	36

Questionnaire format has conducted through an extensive review of the previous literatures related to the study. It is

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consisted of two parts; the first related to the nurses' demographic data which includes (8) items represent age, gender, socio-economic status,level of education, number of nursing session about a cyanotic congenital heart disease, location of training session, years of experience in general hospitals and in pediatric hospitals). The second is related to nurses' knowledge about a cyanotic congenital heart disease which is composed of (8) items including (Knowledge of nurses about the disease, causes of congenital heart defects, types of congenital heart defects, signs and symptoms of a cyanotic disease, treatment of a cyanotic defect, nursing care before the operation, nursing care after the operation**)** .
Content validity of questionnaire is determined through a panel of (10)experts who are faculty members from the College of Nursing, University of Baghdad.Changes and modification were made with respect to the experts' suggestions and recommendations.A pilot study was carried out in NICU of Al-EskanTeaching Hospital in Baghdad City from January 1st to January 19th, 2015. Five nurses were excluded from the sample of the study,they were participated to answer the questionnaire format.

The pilot study aimed to determine the reliability of the questionnaire,any difficulty in understanding of the questionnaire, the barriers of the study,and the time required for data collection,the average time for data collection of each participant was (20)minutes.

The reliability of the question was determined by using person correlation coffined.

The correlation coffined was (r=0.76) in NICU wards which was accepted according to polite and Hungler(1996).

The investigators used direct interview and the constructed questionnaire format to obtain the data from the sample and data are collected from 1st December 2015 through 1st January 2016.

Data were analyzed through the use of SPSS version (20). Mean of score (M.S.)and the level of assessment: **(1-1.67) = Poor**, **(1.68-2.33) = Accepted, (2.34-3) = Good**

Chi-square
This test was used to determine the significant relation of nurse's knowledge relative to the demographic characteristics at p=0.0

3. Results

Table 1: Distribution of nurse's demographic data

Demographic Characteristic of Nurses					
Age			Gender		
	f	%		f	%
22 -26	23	65.6	Male	9	25.7
27 - 31	6	17.2	Female	26	74.3
32 -36	5	14.3	Total	35	100.0
37 - 41	0	0			
42 - 46	1	2.9	Marital Status		
Total	35	100.0		f	%
			Married	17	48.6
Level of Education			Single	13	37.1
	f	%	Divorce	3	8.6
Nursing college	9	25.7	Other	2	5,7
Nursing institute	14	40.0	Total	35	100.0
Nursing school	12	34.3			
Total	35	100.0	Location of training session		
				f	%
No. of nursing session about CCHD			In Iraq	12	34.3
	f	%	Outside Iraq	0	0
One session	8	22.9	Total	12	34.3
Two sessions	2	5.7			
Three sessions	3	8.6			
None	22	62.9			
Total	35	100.0			
No. of years in general hospitals			No. of years in pediatric hospitals		
	f	%		f	%
Less than 1 year	6	17.1	Less than one year	16	45.7
1-3 years	16	45.7	1-3 years	11	31.4
4-6	8	22.9	4-6	4	11.4
7-9	0	0	7-9	3	8.6
More than 10 years	5	14.3	More than 10 years	1	2.9
Total	35	100.0	Total	35	100.0

Table (1) shows this result indicates that 26 (74.3%) of nurses were females and 9(25.7%) of nurses were male.According to this study, most of the sample were female because female had intimate and passions feelings more than male do toward children, so they would like to work in pediatric field.According to the study sample in relation to level of education, most nurses 14 (40%)in the study sample were Diploma.According to the study sample in relation to socioeconomic status indicates 17 (48.6%) of nurses were married.According to the study sample in relationto nursing session about a cyanotic congenital heart disease indicate 8 (22.9%) of nurses were one session and Location of training session in Iraq for 12 (34.3%) of nurses.

Table 2: Nurses' information about a cyanotic congenital heart disease

	Nurses information about a cyanotic congenital heart disease	know		Uncertain		Don't know		M.S	Ass
		f	%	f	%	f	%		
1-	Knowledge of nurses about the disease:								
1-1	congenital heart defects: defects are present in the heart since the first weeks of pregnancy	11	31.4	18	51.4	6	17.1	2.14	A
2-	Causes of congenital heart defects:								
2-1-	pregnant mother injured in the first three months of pregnancy, one of the infectious diseases such as German measles	6	17.1	21	60.0	8	22.9	1.94	A
2-2-	mother taking certain medications during the first trimester of pregnancy	2	5.7	4	11.4	29	82.9	1.23	P
2-3-	mother of radiation exposure during the first three months of pregnancy, especially taking radiograph	12	34.3	13	37.1	10	28.6	2.06	A
2-4-	Genetics and is one of the reasons	2	5.7	5	14.3	28	80.0	1.26	P

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2-5-	Marred from relatives	20	57.1	11	31.4	4	11.4	2.46	A
3-	Types of congenital heart defects:								
3-1- 3-2-	Being two types: cyanotic heart disease a cyanotic heart disease	2	5.7	5	14.3	28	80.0	1.26	P
4-	Signs and symptoms of a cyanotic disease:								
4-1-	Inability to properly feeding (strain) and difficulty breathing	20	57.1	8	22.9	7	20.0	2.37	G
4-2-	Increased respiration and increased his speed with moving the head back and forth when he is breath	10	28.6	15	42.9	10	28.6	2.00	A
4-3-	Excessive sweating even in cold climates	4	11.4	15	42.9	16	45.7	1.66	P
4-4-	increased heart rate	3	8.6	3	8.6	29	82.9	1.26	P
4-5-	very slow weight gain	13	37.1	13	37.1	9	25.7	2.11	A
4-6-	repeated respiratory infections	1	2.9	6	17.1	28	80.0	1.23	P
5-1	a cyanotic defect includes: Hole between the ventricles, the slot between the atria,Pulmonary valve stenosis Channel slot arterial (Butale channel)	1	2.9	5	14.3	29	82.9	1.20	P
5-2-	cyanotic defect includes: Tetralogy of Fallout, pulmonary insufficiency bloody artery, the exchange of grate vessels, narrowing tricuspid valve	2	5.7	4	11.4	29	82.9	1.23	P
6-	Treatment of a cyanotic defect:								
6-1-	each need surgery after the eight years of age	15	42.9	14	40.0	6	17.1	2.26	A
6-2-	You may need surgery as soon as possible and as a child case	17	48.6	8	22.9	10	28.6	2.20	A
7-	Nursing care before the operation:								
7-1-	child health care and the provision of integrated food	1	2.9	5	14.3	29	82.9	1.20	P
7-2-	and child protection from infectious diseases and other injuries	5	14.3	19	54.3	11	31.4	1.83	A
7-3-	help the child and family to understand the situation of children and the causes of the process and alleviate the fear and anxiety they have	11	31.4	10	28.6	14	40.0	1.91	A
7-4-	accustom the baby to see the hospital and oxygen tent oxygen mask	13	37.1	10	28.6	12	34.3	2.03	A
7-5-	make sure there is a complete analysis and X-ray examinations	21	60.0	7	20.0	7	20.0	2.40	G
7-6-	cheek vital signs	18	51.4	10	28.6	7	20.0	2.31	A
7-7-	must make sure that enough blood to the need of the patient according to doctor order	19	54.3	6	17.1	10	28.6	2.26	A
7-8-	teach parents the proper instructions on how to wound care after discharge	1	2.9	4	11.4	30	85.7	1.17	P
8-	Nursing care after the operation:								
8-1-	Maintain the blood circulatory system and put it on the Monitor and follow-up EKG and arterial blood pressure	3	8.6	6	17.1	26	74.3	1.34	P
8-2-	Taking vital signs (pulse, temperature, respiration)	17	48.6	8	22.9	10	28.6	2.20	A
8-3-	maintaining the activity of the respiratory tract								
8-3-1-	put the patient on a ventilator	7	20.0	7	20.0	21	60.0	1.60	P
8-3-2-	Note patient's color constantly	2	5.7	4	11.4	29	82.9	1.23	P
8-3-3-	placed the patient in semi-fowler position after removed from the ventilator	2	5.7	2	5.7	31	88.6	1.17	P
8-3-4-	patient training on breathing exercises	4	11.4	14	40.0	17	48.6	1.63	P
8-3-5-	give warm fluids in small quantities after removed from the ventilator for four hours	6	17.1	3	8.6	26	74.3	1.43	P
8-4-	8-4-maintaine fluid balance in the body and so by observing input and output fluids and recorded	11	31.4	14	40.0	10	28.6	2.03	A
8-5-	protect the child from injury and infection	12	34.3	7	20.0	16	45.7	1.89	A
8-6-	preservation of neurological and psychiatric status	17	48.6	11	31.4	7	20.0	2.29	A
8-7-	avoid complications that can occur after the operationSuch clots legs	11	31.4	18	51.4	6	17.1	2.14	A

M.S**=Mean of score, **Ass.**=assessment , **No.**=number of domain, Level of assessment: **(1-1.67) = Poor** , **(1.68-2.33) = Accepted, (2.34-3) = Good, P=poor , A=accepted , G=good

Table (2) shows that the majority of sample (57.1%) and (60.0%) a good knowledge about Inability to properly feeding (strain) and difficulty breathing and make sure there is a complete analysis and X-ray examinations.

(85.7%) of nurses in study have poor knowledge from the Nursing care before the operation is teach parents the proper instructions on how to wound care after discharge, and (88.6%)of study sample have poor knowledge about maintaining the activity of the respiratory tract that: placed the patient in semi-fowler position after removed from the ventilator.

While near half of sample (51.4%) are uncertain of congenital heart defects: defects are present in the heart since the first weeks of pregnancy and (60.0%) of sample uncertain from cause of congenital heart disease pregnant mother injured in the first three months of pregnancy, one of the infectious diseases such as German measles.

(54.3%) of sample are uncertain of child protection from infectious diseases and other injuries are from nursing care before operation.

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Table 3: Distribution of the nurse's knowledge about A cyanotic congenital heart disease

Level		f	%
Poor	≤53	6	17.1
Accepted	54-71	19	54.3
Good	72-108	10	28.6
Total:		35	100%

Table (3) shows that nurses' knowledge was at an accepted level about A cyanotic congenital heart disease and represent 54.3% (N=19).

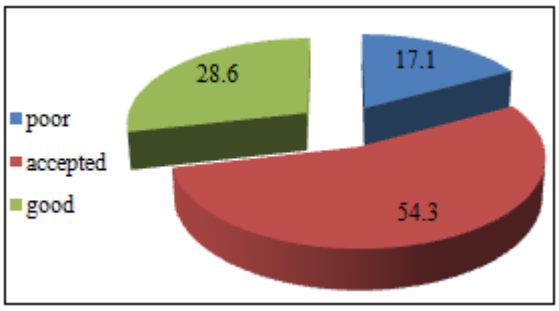

Figure 1: Frequency and percentage for the nurses' level of knowledge (N=35) shows that nurses' knowledge wasat anaccepted level about A cyanotic congenital heart disease and represent 54.3% (N=19).

Table 4: Association between participant's socio-demographic characteristic and their level of knowledge toward A cyanotic congenital heart disease:

	knowledge						P value
	Poor		Accepted		Good		
	f	%	f	%	f	%	
1-Age:							
22 -26	3	13.04	15	65.2	5	21.7	0.130
27 – 31	1	16.7	3	50.0	2	33.3	
32 -36	2	40.0	0	0	3	60	
37 – 41	0	0	0	0	0	0	
42 – 46	0	0	1	100.0	0	0	
2-Gender:							
Male	3	27.28	5	45.45	3	27.28	0.023*
Female	3	12.5	14	58.3	7	29.17	
3-Level of education:							
Nursing college graduate:	1	11.1	3	33.3	5	55.6	0.423
Nursing institute graduate:	2	14.29	9	64.29	3	21.43	
Nursing school:	3	25	7	58.3	2	16.7	
4-Number of years of experience in pediatric hospitals:							
Less than one year	3	18.75	12	75	1	6.25	0.06
1-3 years	1	9.09	6	54.54	4	36.4	
4-6	2	50	1	25	1	25	
7-9	0	0	0	0	3	100	
More than 10 years	0	0	0	0	1	100	

***significant at p<0.05**

Table (4) shows that participant who has accepted knowledge in within 22-26 years old age and there are no association between nurse knowledge and age (p value=0.130). The majority of those who have accepted knowledge is female (n= 58.3%) and there are association between participant's knowledge and gender (p value=0.023%), while there is no association between participant level of education and their knowledge (p value=0.423%) and there is no association between participant years of experience in NICU and their knowledge (p value=0.06%).

4. Discussion of the Results

This chapter presents a systematically organized interpretation and reasonably derived discussion of the results with support of the available literature and related studies.

4.1. Part I: demographic data of nurses at NICU

The Sample of The Study Consist of (36) Nurses Working in NICU at three Pediatric Teaching Hospital in Baghdad City Throughout the Course of the sample of the present study, table (1) indicated that the majority 23 (65.6%) of Nurses in the study sample were within age group (22 -26).

This result agree with studyWONG, S (2013), (effectiveness of an educational health program on pediatric nurses' knowledge and practice toward children under mechanical ventilation in pediatric teaching hospital at Baghdad City) and disagree with EL-Najarand others (2013) study (impact of palliative care education on nurses regarding care of chronically ill children).

In regarding to the gender of the study sample, this result indicates that 26 (74.3%) of nurses were females and 9(25.7%) of nurses were male.

This result disagrees with (Salih,2007) study (Assessment of the Pediatric Nurses' Knowledge and Practice toward care of child who has congenital heart disease in Baghdad Pediatric Hospital) who mentioned that most of his study sample were males. According to this study, most of the sample were female because female had intimate and passions feelings more than male do toward children, so they would like to work in pediatric field, According to the study sample in relation to level of education, most nurses 14 (40%)in the study sample were Diploma. This result agrees with (Ahjil,2011) who mentioned that the majority of his study sample were institute graduates working in NICU and therefore the medical institute graduates had specialty and capable to work in pediatric units.

According to the study sample in relation to socioeconomic status indicates 17 (48.6%) of nurses were married.

According to the study sample in relation to nursing session about a cyanotic congenital heart disease indicate 8 (22.9%) of nurses were one session and Location of training session in Iraq for 12 (34.3%) of nurses.

This result agrees with Shauq (2008) findings shows that (92.3%) of her sample didn't practicing in training session.

In relation to the number of years of experience in general hospital, 16(45.7 %) had service of (1-3) years in the employment. This result agrees with (Al-Saidi,2006) who mentioned that more than one quarter of his sample have (1-5) years of employment as nurses.

In concerning the experience years at pediatric hospital were 16(45.7 %) of nurses had expert (less than one year); this number of years might help to get a little grade of experience in knowledge.

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4.2. Part II: Nurses' information about a cyanotic congenital heart disease

That the majority of sample (57.1%) and (60.0%) a good knowledge about Inability to properly feeding (strain) and difficulty breathing and make sure there is a complete analysis and X-ray examinations. And (82.9%) of the sample do not know mother taking certain medications during the first trimester of pregnancy, (80.0%) of sample don't know Genetics and is one of the reasons and being two types: cyanotic heart disease A cyanotic heart disease. (45.7%) of nurses in study have poor knowledge Excessive sweating even in cold climates from symptoms, (82.9%) don't know increased heart rate from symptoms and (80.0%) repeated respiratory infections also.

(82.9) of sample don't know that A cyanotic defect includes: Hole between the ventricles, the slot between the atria,pulmonary valve stenosis Channel slot arterial (Butale channel), and don't know from the Nursing care before the operation is child health care and the provision of integrated food and child protection from infectious diseases and other injuries.

(85.7%) of nurses in study have poor knowledge from the Nursing care before the operation is teach parents the proper instructions on how to wound care after discharge. And (74.3%) don't know from Nursing care after the operation is Maintain the blood circulatory system and put it on the Monitor and follow-up EKG and arterial blood pressure.

(60.0%), (82.9%), (88.6%), (48.6%) and (74.3%) of study sample have poor knowledge about maintaining the activity of the respiratory tract and that: put the patient on a ventilator, Note patient's color constantly, placed the patient in semi-fowler position after removed from the ventilator, patient training on breathing exercises and give warm fluids in small quantities after removed from the ventilator for four hours.

While near half of sample (51.4%) are uncertain of congenital heart defects: defects are present in the heart since the first weeks of pregnancy and (60.0%) of sample uncertain from cause of congenital heart disease pregnant mother injured in the first three months of pregnancy, one of the infectious diseases such as German measles.

While nurses sample in the study have accepted knowledge of mother of radiation exposure during the first three months of pregnancy, especially taking radiograph and Marred from relatives are from the causes.

There are equaled in(28.6%) of know and don't know about increased respiration and increased his speed with moving the head back and forth when he is breath are from the symptoms of congenital heart disease and also accepted in(37.1%) very slow weight gain from the symptoms.

(40.0%),(22.9%) of sample is uncertain about the knowledge of the treatment each need surgery after the eight years of age and may need surgery as soon as possible and as a child case.

(17.1%), (54.3%)of sample are uncertain of must make sure that enough blood to the need of the patient according to doctor order and child protection from infectious diseases and other injuries are from nursing care before operation.

While sample have (28.6%) the same percent of uncertain of knowledge of help the child and family to understand the situation of children and the causes of the process and alleviate the fear and anxiety they have, accustom the baby to see the hospital and oxygen tent oxygen mask and cheek vital signs.

(22.9%) have accepted knowledge of taking vital signs (pulse, temperature, respiration) as nursing care after operation.

(40.0%),(20.0%),(31.4%)and (51.4%) regarding maintaining the activity of the respiratory tract that uncertain of knowledge of 8-4-maintaine fluid balance in the body and so by observing input and output fluids and recorded protect the child from injury and infection preservation of neurological and psychiatric status avoid complications that can occur after the operation such clots legs.

4.3. Part III: Association between Nurses' knowledge about A cyanotic congenital heart disease and their demographic data

4.3.1. Association between nurses' knowledge and their age

The finding indicates that there are no association between nurse knowledge and age (p value =0.130) table (4) shows that participant who has accepted knowledge in within 22-26 years old age This result agreed with Al-Saidi(2006).

4.3.2. Association between nurses' knowledge and their gender The finding indicate that there is statistical significant association between nurses' gender and their knowledge (p=0.023%) table (4) This result disagrees with Saleh(2007) whofound that there is no statistical significant association between nurses' gender and their knowledge and nursing care.

4.3.3. Association between nurses' knowledge and their level of education

The findings indicate that there was no statistical significant association between nurses' knowledge and their education level (p value=0.423%) table (4) The results of this study disagree with Shauq(2008). The findings showed a statistical significant association between nurses' education level and their knowledge

4.3.4. Association between nurses' knowledge and their years of experience at NICU

The finding revealed that there was no statistical significant association between nurses' knowledge and their years of experience at NICU (p value=0.06%) Table (4). This result agrees with Al-Sai'di(2006) and Salih (2007) who found that there were no statistical significant association between nurses' knowledge and their years of experience at NICU.

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5. Conclusion

1) Most of the sample are female 74.3%
2) Frequency and percentage for the nurses' level of knowledge the nurses have accepted level about A cyanotic congenital heart disease 54.3%
3) 80.0% of sample don't know genetics and is one of the reasons and being two type cyanotic heart disease and A cyanotic heart disease
4) 82.9% of sample don't know that A cyanotic defect include:hold between the ventricles, the slot between the atria, pulmonary valves stenosis channel
5) 85.7% of nurses in study have poor knowledge from the nurse care before the operation is teach parent the proper instruction on how to wound care after discharge
6) 51.4% half of sample are uncertain of congenital heart defect present in the heart since the first week of pregnancy
7) 40.0% of sample are uncertain about the knowledge of the treatment need surgery after the eight years of age
8) 22.9% of sample have accepted knowledge of taking vital signs as nursing care operation

6. Recommendation

1) The research should include all of Iraq hospitals in order to find out about the nurses' knowledge about A cyanotic congenital heart disease
2) Increasing training courses for nurses to improve their knowledge about A cyanotic congenital heart diseases
3) Instruction booklets about A cyanotic congenital heart diseases to improve their skills
4) More study for nurses who have acceptable knowledge.

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