Develop Guidelines Instructions for Nurses Regarding Caring of Children Suffering from Favism

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Abstract

This study **aimed** to: Effect of Guidelines Instructions on Nurses Regarding Caring of Children suffering from Favism. **Subjects and Methods:** a quasi-experimental study was conducted at hematological units in children hospital affiliated to both Ain Shams and Tanta University hospitals. **Subjects:** A convenience sample include total number of 50 nurses. **Tools:** A structured questionnaire to assess nurses characteristic and their knowledge regarding favism, . **II-** observational checklist to assess nurses practices regarding care of children with favism and A guiding Booklet about favism. **Results**: : nearly half (48%) of studied nurses their age were 20<30 years and more than two fifth of them (44%) held <5 years of experience in hematological units, There was statistically significant difference between Pre / Post guidelines regarding nurses' total level of knowledge and their total level of practices as regards care for children with favism . **Conclusion:** The designed guidelines instructions led to significant improvement of knowledge and performance of the studied nurses toward care of children with favism**. Recommendations:** The study recommended that, periodic refreshing training should be provided for all nurses working in hematological department and caring of children with favism. A manual guided booklet about favism should be available for all nurses working in hematological unit.

Key wards: Children, Guidelines Instructions, Favism, Nurses.

Introduction

Favism is a form of hemolytic anemia and jaundice following the intake of fava beans and other legumes and various drugs. All individuals with favism show Glucose 6 phosphate dehydrogenise deficiency (G6PD). The G6PD is an enzyme that is responsible for maintaining the integrity of RBCs by protecting them from oxidative substance. Deficiency of glucose - 6-phosphate dehydrogenase is a very common x-linked genetic disorder.It caused by a hereditary abnormality of the red blood cell enzyme gloucose-6-phosphate dehydrogenise (G6PD) which can cause sudden destruction of the red cell. ***(Meletis, 2012)***

Favism occurs commonly only where the frequency of G6PD deficiency is relatively high and where fava beans are a popular food item, which reflects its bio factorial nature. G6PD deficiency alleles are distributed universally; estimate that at least 400 million people carry some sort of mutation in the G6PD gene leading to its deficiency. The highest prevalence is found in Africa, the Middle East, southern Europe, Southeast Asia, and Pacific islands **(Luzzatto, 2018).**

Glucose-6-phosphate dehydro-genase Med mutation is 1 of the most common mutations causing G6PD deficiency among Egyptian children with G6PD deficiency, with linkage disequilibrium between this G6PD mutation and thymine at nucleotide. The incidence of G6PD trait in Egyptian males is rather high. The bean is commonly mixed with imported fava vicia and is consumed by nearly all Egyptians which is relatively higher than some other Mediterranean countries **(Khalifa et al., 2016).**

Defective G6PD can cause hemolytic anemia in the presence of several precipitating factors include**,** Fava bean ingestion or inhalling pollen from fava plants, Infections such as hand-foot-mouth disease, enteroviruses, hepatitis A, typhoid fever, and pneumonia also trigger hemolysis in G6PD deficient persons. Consumption of some antibiotics, anti-malarial agents such as Acetanilide, Nalidixic acid, phenazopyridine, Aspirin, and sulfonamides, can cause episodes of acute hemolysis **(Romanian, 2008).**

The majority of patients with G6PD deficiency are asymptomatic although there is still a risk of neonatal hyperbilirubinemia and acute hemolysis after contact with oxidative stressors from fava bean ingestion, oxidant drugs, chemotherapy, infection. The acute haemolytic attack starts with malaise, weakness, paleness, dizziness, headache and abdominal or lumbar pain, followed by passage of dark urine (haemoglobinuria) Hemolytic anemia, when very severe, can end in death **(Pinto, 2017)**.

The most efficient management approach for G6Pd deficiency is the prevention of hemolysis by avoiding traditional use of medicine and avoiding exposure to triggering factors that lead to appear hemolytic anemia for children with favism. Prompt blood transfusion is indicated in severe acute hemolytic anemia and may be life-saving. Finally, the best way to care for a child with G6PD deficiency is to limit exposure to the triggers of its symptoms and preventing complications of G6PD deficiency **(Huey Lee et al., 2017)**.

The nurse plays an important role for providing the care of children with favism. Most of nurses have little experience with them and little knowledge of how to care for children with favism and need for adequate knowledge and practice to increase their ability to lead normal and productive life to children **(Berenson, 2011)**.

Significance of the study

Glucose-6-phosphate dehydro-genase deficiency is the most common inborn metabolic disorder in the world, affecting 10% of the world's population. It affects an estimated 400 million people worldwide and is most prevalent in Africa, Southeast Asia and the Middle East. The prevalence of G6PD deficiency in Egypt has been reported to be 4%–9.9%, which is relatively higher than some other Mediterranean (Med) countries. The major morbidity associated with G6PD deficiency is hemolytic anemia, which cause rapid heart rate, shortness of breathing, haemoglobinuria and in severe cases lead to kidney failure so that some children may be life-threatening may lead to death **(Glader, 2012)**.

Favism is a potentially life-threatening hemolytic anemia that results from the ingestion of fresh, frozen, cooked, raw or dried fava beans and Children with favism required good health education about this oxidative substances **(Athab et al., 2017)**. So that the nurse need to be alert and has sufficient guidelines regarding such problem. This can raise their awareness, and can help to improve their Knowledge and practice toward children suffering from favism and its complication.

Aim of this study

Effect of Guidelines Instructions on Nurses regarding caring of Children suffering from Favism.

Research Questions:

This study is based on answering the following question:

- What are the guidelines instructions for nurses regarding care of children suffering from favism?
- IS there a relation between nurses guidelines instructions and their practice regarding care of children suffering from favism?
- To what extent the nurse guidelines instructions and their practice will affected with their socio-demographic characteristics on their caring of children suffering from favism?

Subject and Methods

Research design:

Quasi experimental design was utilized to conduct this study.

Setting of the study:

This study was conducted at hematological units in children hospital affiliated to both Ain Shams and Tanta University hospitals.

Subject:

All available nurses and children (50) who attended in the previously mentioned setting for six months period children having favism from both gender, age from 5-18 year, Children in acute and chronic stage and free from any other chronic disease.

Tools for data collection:

Data collected through using the following tools:

A Structured Questionnaire Format: It included the following three parts:

Part 1: It was concerned with characteristics of studied nurses such as age, gender, educational level, years of experience, residence, and previous or present training program about favism).

Part 2: It was concerned with characteristics of the studied children such as age, gender, length of hospital stay, history of diseases, and dietary habits) ***(Abdel fatah, 2013).***

Part 3: It was dealt with nurses knowledge related to favism such as definition, causes of favism, heredity factors, signs and symptoms, prevention and treatment and nutritional requirements for child with favism and finally caring for the child when he have hemolytic anemia***(Tantawy et al.,2012).***

❖ **Scoring system:**

The total numbers of questions were 38, nurses's answers were checked with key model answer then their answers for each question categorized as the following:

- A correct and complete answer was give (2) point.
- A correct and incomplete answer was give (1) point.
- Incorrect answer was give (0) point

Then the nurses's score were summed and total scores were categorized as:

- Satisfactory knowledge: 70% & more.
- Unsatisfactory knowledge: Less than 70%.

II: Observation checklist: Pre/Post guidelines instructions:

It was adapted from **Bowden (2016),** to assess actual nurses' practices regarding care of children with favism in relation to measuring child weight & height, IV drug administration, oxygen therapy, blood transfusion, blood sample, urine sample and

stool sample. Each nurse was observed during each procedure for different times using observation checklists.

❖ **Scoring system:**

Then the nurses' practices were checked during actual nursing care according to observational checklist and each step scoring as the following:

- Correctly done (2) points.
- Incorrectly done (1) point.
- Not done (0).

The total steps were (104) step and categorized as:

- Competent: 85% & more
- Incompetent: Less than 85% nurse's practice.

Aguiding booklet:

A guiding booklet was designed by the researchers after reviewing the related literature; it was designed in an Arabic language. The guiding booklet was evaluated for its content validity and clarity by a panel of experts' professions in pediatric. In the light of their comments, the necessary modifications were carried out and the final form of the guidelines booklet was stated and distributed.

The purpose of this guidelines was to develop guidelines instructions for nurses on the topic of nurse's care towards children who suffering from favism. Nursing practices were evaluated prior to and following the implementation of the Guidelines instructions to assess its effect.

Pilot study

The pilot study was carried out involving 10% of the study sample. About 2 weeks period was required to fulfill the tools of data collection. The results of the data obtained from the pilot study were used to evaluate of the applicability of the study tools, to determine time consumed, and to test the clarity and feasibility of the study to apply it. According to the results obtained from the pilot study, the necessary modifications were done. The nurses of pilot study was not included in the study sample

Field work:

The actual field work was carried out over five months from the beginning of December 2017 to the ending of April 2018for data collection. The researcher were available in the study settings four days per week during morning shift from 8 Am to 1 pm .the researcher introduces herself to all studied nurses and explained the aim of the study

The researcher performs the research in the following phase:

1-Assessment phase

In this phase, the investigator was using the constructed tools in collecting the data related to nurses' knowledge and practice related to care of children with favism (pre test).

2-Implementation phase:

The researcher implemented guidelines instructions step by step for hematological staff nurses, those responsible for providing care for children suffering from favism. The researcher distributed the guidelines booklet to the nurses, where the researcher explained the content of the guidelines booklet and how to use it as a personal reference.

The total number of sessions was 6 (2 sessions for knowledge about favism, 4 sessions for practice, each session took about 1 hour and 15 minutes.

Session of knowledge include acquire nurses information about favism through using booklets (definition of favism, predisposing causes or factors, signs and symptoms, treatment, health education, suitable nutrition for their children with favism, forbidden nutrition which should be restricted from their children which lead to hemolytic anemia

And Session of practice includes increase nurses their performance about physical assessment to assess health status of the child, IV drug administration, oxygen therapy, policy and procedures of blood transfusion, blood sample, and finally steps of urine and stool collections. At the beginning of every session a feedback about the previous session was done and the objective of new topic was explained, the researchers allowed the nurses to ask and share in discussion, nurses' were discussed to correct any errors in additions. Different teaching strategies were used such as open discussion, small group discussion. Suitable teaching aids prepared especially for the guidelines such as booklet, and and laptop screen show.

3-Evaluation phase:

The researchers evaluate the effect of Guidelines instructions (booklet) that equipped for the nurses. The post test was done for nurses to evaluate the outcomes of this guidelines instructions using the same pre guidelines tools.

Ethical considerations:

Approvals to carry out the study were obtained from the Ethical Research Committee at the Faculty of Nursing- Ain Shams University and hospitals administrations. An oral consent was also obtained from either the all studied sample to participate in the study. Nurses were assured that information would be confidential and used for their benefit and researching purpose only and all studied sample had the rights to withdraws from the study at any time.

Administrative Design:

An official written letter approval was obtained from the college of medicine and nursing Ain Shams University/Tanta University in order to clarify the purpose of the study and was submitted to the authorities in the study settings.

Statistical Design:

Data were collected and fed into the computer for analysis and presentation. Data were entered and analyzed using Statistical Package of Social Science (SPSS) software version 18. Data were presented using descriptive statistics in the form of frequencies, percentages, means and standard deviation. Chi square test was used and Bivariate Pearson correlation test to test association between variables. Statistically significant difference was considered when P-Value ≤ 0.05.

Results:

Table (1): showed that, slightly less than half (48%) of studied nurses were in the age group of 20<30 years with mean age 32.88±9.55 year and 40% of them had diploma of nursing and technical Institute of Nursing respectively. Also, this table revealed that more than two fifth (44%) of studied nurses had <5 years of experience in hematological units and 76% of them not attended any previous training courses regarding blood diseases.

Table (2): illustrated that, most (80% &84%) of studied children aged less than 10 years, with mean age 7.96±3.89 years and were male respectively. In relation to length of hospital stay, it was found that less than two thirds (64%) of studied children had 2-5 days stay in hospital and more than half (52%) of them had positive family history to favism.

Table (3): showed that, there were highly statistical significant differences (P<0.001) between nurses' knowledge pre and post guidelines related to definition, causes, risk factor, symptoms, complications and treatment of favism.

Table (4): showed that there were statistical significant differences (P<0.005 & <0.001) between nurses' knowledge Pre /Post guidelines related to immediately nursing procedures after child admit ion, laboratory investigations conducted for the

child**,** purpose of blood transfusion, Symptoms to be monitored during blood transfusion, precautions and Complications of blood transfusion.

Figure (1): illustrated that there was improvement with highly statistical significant difference Post guidelines implementation related to total nurses' knowledge about favism (X^2 = 13.803 and p < 0.001).

Figure (2): revealed that there was significant improvement Post guidelines implementation regarding nurses' total practices as regards care of children with favism.

Table (5): cleared that, there was a statistically significant difference between nurses total knowledge about favism and their total practices Post guidelines With (X^2=7.853 & P<.005).

Table (1): Distribution of the studied nurses according to their socio demographic characteristics (n=50).

Nurses Characteristics	N	%
Age		
20<30	24	48
30<40	12	24
40 years&more	14	28
$\bar{x}$±SD	32.88±9.55	
Marital status		
Married	40	80
Single	10	20
Years of experience		
<5	22	44
5-10	12	24
>10	16	32
$\bar{x}$±SD	8.52±3.67	
Educational level		
Diploma of Nursing	20	40
Technical Institute of Nursing	20	40
Bachelor of Nursing	10	20
Previous training about blood diseases		
Yes	12	24
No	38	76

Table (2): Distribution of the studied children according to their characteristics (n=50).

Children Characteristics	N	%
Age		
<10	40	80
>10	10	20
$\bar{x}$±SD	7.96±3.89	
Sex		
Male	42	84
Female	8	16
Length of stay in hospital		
1-≤2	18	36
2-5	32	64
$\bar{x}$±SD	3.12±1.08	
Family history of favism		
Positive	26	52
Negative	24	48
Relatives who have the disease		
Frist degree	8	16
Second degree	18	36

Table (3): Distribution of the studied nurses according to their knowledge about favism pre/post- guidelines instructions (n=50).

Nurses's knowledge about favism	Pre						Post						Chi-square	
	Incorrect and wrong		Correct and in complete		Correct and complete		Incorrect and wrong		Correct and in complete		Correct and complete			
	N	%	N	%	N	%	N	%	N	%	N	%	X^2	P-value
Definition	22	44	12	24	16	32	11	22	7	14	32	64	19.084	<0.001**
Causes	30	60	14	28	6	12	22	44	10	20	18	36	16.714	<0.001**
Risk factors	41	82	6	12	3	6	21	42	13	26	16	32	38.672	<0.001**
Signs and symptoms	4	8	28	56	18	36	14	28	9	18	27	54	15.264	<0.001**
Complications	14	28	7	14	29	58	13	26	3	6	34	68	33.979	<0.001**
Treatment	2	4	21	42	27	54	3	6	11	22	36	72	46.035	<0.001**
Medication constraints	19	38	26	52	5	10	19	38	12	24	19	38	3.251	0.197

Table (4): Distribution of the studied nurses according to their knowledge about care on admission and blood transfusion pre/post-guidelines instructions (n=50).

Items knowledge	Pre						Post						Chi-square	
	Incorrect and wrong		Correct and in complete		Correct and complete		Incorrect and wrong		Correct and in complete		Correct and complete			
	N	%	N	%	N	%	N	%	N	%	N	%	X^2	P-value
Immediately nursing procedures after child admition	**6**	**12**	**15**	**30**	**29**	**58**	6	12	**2**	4	**42**	84	52.097	<0.001**
laboratory investigations conducted for the child	**7**	**14**	**23**	**46**	**20**	**40**	10	20	**8**	16	**32**	64	18.974	<0.001**
purpose of blood transfusion	**8**	**16**	**13**	**26**	**29**	**58**	9	18	**3**	6	**38**	76	39.161	<0.001**
Symptoms to be monitored during blood transfusion	**8**	**16**	**23**	**46**	**19**	**38**	15	30	**6**	12	**29**	58	12.758	<0.005
Precautions during blood transfusions	**2**	**4**	**23**	**46**	**25**	**50**	3	6	**11**	22	**36**	72	45.059	<0.001**
Complications of blood transfusion	**17**	**34**	**19**	**38**	**14**	**28**	8	16	**2**	4	**40**	80	27.780	<0.001**

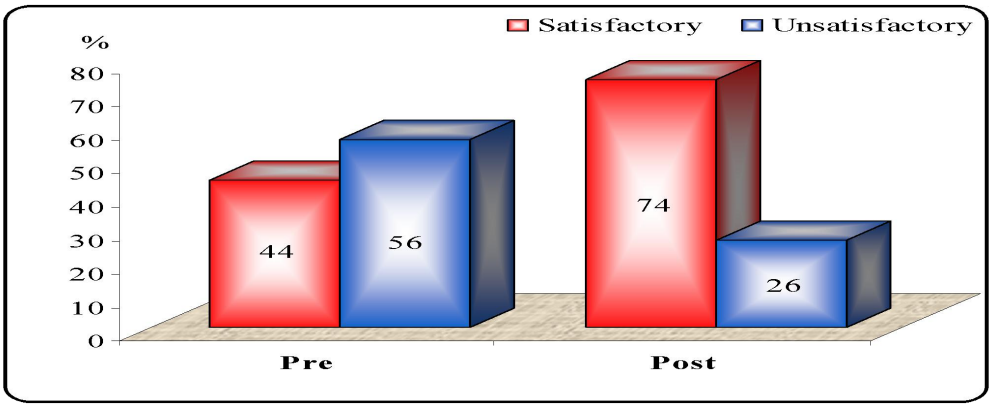

Figure (1): Distribution of the studied nurses according to their total knowledge about favism pre/post-guidelines instructions.

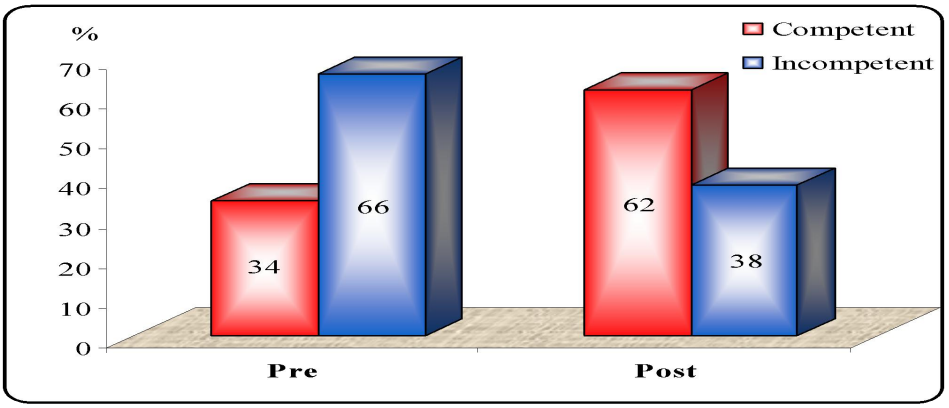

Figure (2): Distribution of the studied nurses according to their total practices pre / post guidelines.

Table (5): Relation between nurses' total level of knowledge and their total level of practices about favism Post guidelines instruction.

Total practice	Total knowledge					
	Satisfactory		Unsatisfactory		Chi-square	
	N	%	N	%	X^2	P-value
Competent	27	54	4	8	7.2728	0.007*
Incompetent	10	20	9	18		

Discussion

The finding of the current study **(Table 1)**, revealed that slightly less than half of studied nurses aged 20<30 years old and two fifth of them held diploma. These findings were disagree with the results of ***Elewa & Ahmed (2017)*** who conducted a study entitled "Effect of An Educational Program On Improving Quality of Nursing Care of Patients With Thalassemia Major As Regards Blood Transfusion" and mentioned that more than half of studied nurses at the age above 30 year old and less than three quarters of nurses held diploma . This is may be due to new polices of Ministers of Health that conduct high educated nurses to work in critical setting as ICU and hemodialysis units.

The present study revealed that more than two fifth of studied nurses had less than 5 years of experience in providing care for hematological patient. This finding was in contrast with those of ***Abdel fatah (2013)*** who conducted a study about Quality of nursing care toward children with favism and reported that more than three quarters of nurses had over three years of experience. Moreover, according to the results of ***Lebona et al., (2016)*** who studied Assess the knowledge regarding blood transfusion among staff nurses and nursing students in Narayana Medical College & Hospital (NMCH) Nellore and reported that nearly three quarters of nurses had 1 years of experience in hematological department. This might be due to that the most common age group of the nurses is this setting in the youngest age.

The findings of the present study clarified that slightly more than three quarters of studied nurses not attended any previous training courses regarding blood diseases. This finding was in the same line with that of ***Khalil et al., (2013)*** who carried out a study about Impact of implementing a designed nursing intervention protocol on nurses' Knowledge and practice regarding patients undergoing blood Transfusion and reported that the majority of nurses did not attend any previous training program about blood transfusion. The importance of such training is of a crucial importance for guiding clinical practice, and skills for nurses safely and competently ***(Mary et al., 2013).***

As regards characteristics of the studied children **(Table 2),** the findings of the present study showed that most of studied children were male. This finding was highly supported with that of ***Fathy (2008),*** who conducted a study about Effect of glucose-6-phosphate dehydrogenase deficiency on some biophysical properties of human, erythro-cytesromanian and mentioned that the majority of the studied sample were males and from rural areas. It could be due to that Glucose-6-phosphate dehydrogenase deficiency is an X-linked recessive hereditary disease and affected on male than female.

The present study indicated that more than half of the studied children had positive family history of favism. This result was disagree with that of ***Wynne (2011)***, who carried out a study entitled "The Polyphenolic content and enzyme inhibitory activity of testate from bean (Vicia Faba) and Pea (Pisum Spp.) Varieties", and found that all sample have positive history related to G6PD.

Concerning the nurses' knowledge about favism **(Table 3)**, The findings of the current study revealed that there were improvement with highly statistical significant in most items of knowledge related to definition, causes, risk factor, sign and symptoms, complication and treatment of favism among the studied nurses after guidelines instruction implementation. These findings were supported with findings

of ***Abdel Fatah (2013),*** who found that majority of nurses 'knowledge were satisfactory post program related to a definition, causes, risk factor, symptoms and complication of favism. This improvement may be due to many reasons as, knowledge refreshment through the guidelines sessions, relevance of the items of the guidelines content, and its language. It is important that nurses should increase their level of knowledge which enables them to provide high quality care for children with favism.

Regarding nurses knowledge about care on admission and blood transfusion for children with favism **(Table 4),** the results of the present study illustrated that there were statistical significant differences between pre /post guidelines regarding to nurses knowledge about purpose for blood transfusion and symptoms to be monitored during blood transfusion**.** These results were in the same line with that of ***Hijji et al., (2013),*** who carried out a study entitled "Knowledge of blood transfusion among nurses" and mentioned that nurses' knowledge about purpose, risks of blood transfusion and signs and symptoms of reactions, rules and policies related to blood transfusion were unsatisfactory in the pre-program phase, but it improved significantly in the post-program implementation. Adequate education and training program and refreshment of knowledge periodically lead to good nurse' knowledge about care and precautions of blood transfusion which put patients at safe during blood transfusion. Insufficient knowledge has been attributed to deficiency in orientation or training and requires nurses to engage in life-long learning to maintain and improve professional knowledge ***(Khalil et al., 2013)***.

As Regards relationship between nurses' total knowledge and their total practices about favism Post guidelines instruction **(Table 5),** clarified that there was a statistical significant difference between nurses total knowledge about favism and their total practices Post guidelines. It could be due to the effect of guidelines instructions. This finding was supported with that of ***Needleman (2002),*** who conducted a study entitled "Nurse-staffing levels and quality of care in hospitals" and showed that there was a statistical significant difference between nurses' knowledge and their level of care toward patients.

CONCLUSION

The designed guidelines instructions led to significant improvement of performance of the studied nurses toward care of children with favism and these findings reflect that, the guidelines instruction has a positive effect on nurses' knowledge and practices.

Recommendations

- The study recommended that, periodic refreshing training should be provided for all nurses working in hematological department and caring of children with favism.
- A manual guided booklet about favism should available for all nurses working in hematological unit.

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