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A descriptive study to assess the knowledge regarding torch infections among staff nurses working in maternity units of selected hospitals Jalandhar, Punjab with a view to develop an information booklet on prevention and management of torch infections

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Abstract
Background of the study: TORCH infections are potentially severe infection and its prevention is most often based on serological screening in pregnant women. Many cases could be prevented by simple precautions during pregnancy. Aiming to assess the knowledge about TORCH infections among Staff nurses, As TORCH infections are transmitted from mother-to-child (MTC) through placenta, early diagnosis and treatment can prevent serious and irreversible fetal damage. Thus, nurses who provide prenatal care must be appropriately trained on prophylactic, diagnostic, and clinical aspects of TORCH infections. Therefore, the study title "A descriptive study to assess the knowledge regarding TORCH infections among staff nurses working in maternity units of selected hospitals Jalandhar, Punjab, with a view to develop an information booklet on prevention and management of TORCH infections."
Methodology: A quantitative research approach and descriptive research design was used for the research study. The study was conducted at Civil Hospital, Jalandhar, Punjab. The study sample comprised of 60 staff nurses. Non -probability purposive sampling technique was used for the selection of samples. Self - structured knowledge questionnaire containing 30 items was used to assess the knowledge of staff nurses.
Result and conclusion: The findings revealed that the mean of the knowledge score was 18.55 (± 3.06) with mean difference 30.91%. Hence, the results depicts that most of the staff nurses had an average knowledge regarding TORCH infections.
Recommendations: The study can be done on large sample in different settings. It can also be done in quasi - experimental and comparative form to assess the knowledge regarding TORCH infections.

Keywords: Self-structured knowledge questionnaire, staff nurses, knowledge

Introduction
Every pregnancy is unique and is the most fascinating and delicate experience for woman. Experiences for the women may be new and uniquely different. Pregnancy is measured from last menstrual period (LMP) of women and it continue for nine months. Pregnancy is a condition in which the fetal growth go with changes in the maternal body composition and metabolism [1]. During the time of pregnancy, the first trimester is a significant period frequently distraught with difficulties like bleeding and pain, foremost critical uneasiness for the mother. Pregnancy loss has been allocated to variety of factors in women's reproduction. Such complications are genetic, effects on uterine malformations, endocrine and immunological abnormalities, contagious agents, pollutants in the environmental, psychogenetic factors and adenomyosis. These complications become the most significant causes of spontaneous abortion. Influence of spontaneous abortion is a new critical issue for social and economic conditions. In today's time period majority of women decide to conceive in the age of thirties or forties, as long as they are career-oriented during the overage they are efficient to producing offspring [2].
Most of the women after their age of 30-35 years, decreases possible fertility and increases the rate of spontaneous abortion. In countries like India, however teenage pregnancy on the other hand is a sufficiently usual incident.

Pregnant teenagers are at high risk and have need for the essential supplementary care. The infections such as stress, pollutants, smoking etc. increases the risk which causes abortions [3].

Various maternal infections are transferred in-utero at different stages of the pregnancy and it can be caused by many pathogenic organisms, like Toxoplasmosis, Rubella virus, Cytomegalovirus and Herpes simplex virus. Maternal infections are now increased in existence and recognized as a crucial cause of birth anomalies in newborn babies. The virus can cross placenta at the time of pregnancy and results in fetal infections and birth defects [4].

TORCH infections are usually seen in all social and economic category. The significant congenital infections and abnormalities are notice in women who are at child bearing age, excessive rate of risk of obtaining primary infections are found in population. Furthermore, to placental route, TORCH infections are mostly transmitted at the time of delivery through the maternal genital tract, during period of post-partum in mother's breast milk and transfused through blood products [4]. TORCH infections can give rise to intra uterine deaths, stillbirths, congenital abnormalities, eye disorders, chronic deafness and mental retardation in the fetus. These infections possibly obtain in uterus or at the time of delivery which causes severe disease conditions in mother and morbidity and mortality rate in the newborn. First trimester is the most dangerous time for pregnancy to capture infections easily, because during this both are at high risk [5]. We cannot decline that TORCH infections have become part of mother's normal life. TORCH infections throughout pregnancy time can make risk not only for the mother but also the newborn and infants may have various critical risks and complications. These infections also produce great risk to the pregnancy itself. Maternal infections are now being increased due to pollutants present in the environment and recognize as a severe cause of congenital abnormalities in the newborn babies [6].

In the antenatal period identification of high-risk mothers who alone or along with growing fetus are at high risk of complications during and after pregnancy and at the time of birth of newborn. Infection may be mild or asymptomatic in the mother, but the outcome can be dangerous for the growing fetus [7].

The risk of these infections for newborn particularly depends on the stages of pregnancy and for each infection it varies e.g., first the maternal infections which are transmitted in uterus at three trimesters of the pregnancy, can be caused by many organisms, such as Toxoplasmosis, Rubella virus, Cytomegalovirus (CMV), Herpes Simplex Virus (HSV) sometimes these infections in mother are mild or asymptomatic but are the most dangerous factors for the fetus or newborn. These infections are related with unintentional outcomes like all types of abortions, intrauterine fetal deaths, sterility, still births, congenital abnormalities and other reproductive deformities, especially when these infections are occurred at the time of first trimester of the pregnancy. As the clinical diagnosis are unreliable, basically these maternal infections are asymptomatic at initial stage and the diagnosis of these infections depend on serological evidences. The detection and identification of the IgM antibody against TORCH is the best approach for these infections [8].

Screening program for detection of TORCH is not available nationally. Serologically TORCH infections at the time of pregnancy remains the only method of revealing such infections. Sometimes the treatment of maternal infections has no impact on the fetal outcome [9].

If TORCH infections are confirmed, Ultrasonography for ventricular dilation are done at 20-22 weeks. Amniocentesis and Cardiocentesis for detection of IgM antibody in the fetal blood and amniotic fluid are done. Rubella vaccine (live, attenuated, rubella virus) are given to individuals to conferred their active immunity preferably during adolescent girl. This vaccine is not suggested for pregnant women. When vaccine is given during child bearing period, pregnancy must be prevented for at least 3 months. Viral infections can be detected by culture of urine and nasopharyngeal secretion. The virus is present in urine, vesicle and cerebrospinal fluids (CSF). No particular anti-viral treatment at this time is effective against congenital infections. An exposed infant must be isolated with the mother for care [10].

Immunology plays an important role in the pregnant women. For foreign body there are many placental-moderate methods that prevent the immune response of the mother against the fetus. In normal pregnancy, T-helper cells results in developing immune responses. It is associated from the placental tissue with good progesterone secretion that develop a successful outcome of pregnancy. The weak immunological response from the mother and suppressed progesterone -blocking factor can lead to failed pregnancy outcome [11].

Early diagnosis of the mother in her pregnancy can treat some vertically transmitted infections such as toxoplasmosis infection is effectively treated with antibiotics. Rubella should be prevented by vaccination to mother prior to pregnancy. If the herpes simplex virus is active in mother, the delivery should be conducted with caesarian section to prevent the newborn from direct contact with the consequent viral infection. Cytomegalovirus should be prevented from direct contact of infected persons urine or saliva to frequent hand washing while breast feeding and caring to newborn is needed [12].

Prevention includes educated women about proper hand washing and washing of kitchen surface following contact with unpasteurized milk, uncooked meat, and do not contact with cats and dogs as these infections are spread with these animals also. All the pregnant mothers should be encouraged for the early screening and antenatal checkups. If the mother is diagnosed for earlier, it will beneficial for both mother and baby. The effect and diagnosis of the disease have been important to prevent with the vaccination strategies and to decrease the mortality and morbidity rate of newborn [10].

The goal of preventing TORCH infections due to good cleanliness, prenatal diagnosis, antiviral treatment, development and administration of booster vaccine may accomplish the goal of preventing TORCH infections in mother and infections related to congenital abnormalities in newborn. In the most of developing countries like India the importance may first and foremost be given to initiation of antenatal diagnosis for TORCH infections has been implemented against HIV. Newborn who are suffering from one of the TORCH infections should require close monitoring. The health officials to make plans against congenital TORCH infections induce in the country with the help of data generated. The pregnant woman obtaining a teaching from health workers. Observe its functional and

acquire to understand the significance of existence aware of the health suggestions especially during as delicate period of pregnancy [13].

Health workers should be aware and know the preventive measures, against these maternal infections such as TORCH infections which are transmitted from mother-to-child during pregnancy through placenta. In order to reduce the high incidence of infants with congenital infections, morbidity and mortality rate, all pregnant women should be educated at the time of antenatal visits regarding TORCH infections and their prevention [14].

Hence, the knowledge of TORCH infections will help obstetrician's and nurses to counsel the mothers who are suffering or detected from these infections on preventive actions to avoid these infections. This will also support in directing parents on the possibility for unfavorable fetal outcomes when these infections are present in a mother during the time of pregnancy [15].

Research problem: "A descriptive study to assess the knowledge regarding TORCH infections among staff nurses working in maternity units of selected hospitals Jalandhar, Punjab, with a view to develop an information booklet on prevention and management of TORCH infections."

Objectives

1. To assess the knowledge regarding TORCH infections among staff nurses.
2. To determine the association of knowledge regarding TORCH infections among staff nurses with their selected socio-demographic variables.
3. To plan and distribute an information booklet on prevention and management of TORCH infections among staff nurses.

Research approach: Non-experimental research approach was considered to be appropriate for the present study as it aimed to assess the knowledge regarding TORCH infections among staff nurses working in maternity units of Civil Hospital Jalandhar.

Research design: The research design is overall plan for obtaining answer to the question being studied. A non - experimental descriptive design was considered appropriate for the study to assess the knowledge regarding TORCH infections among staff nurses working in maternity units of Civil Hospital Jalandhar.

Target population

The target population for the present study was staff nurses of selected hospital, Jalandhar i.e Civil Hospital.

Research design

The research design is overall plan for obtaining answer to the question being studied. A non -experimental descriptive design was considered appropriate for the study to assess the knowledge regarding TORCH infections among staff nurses working in maternity units of Civil Hospital Jalandhar.

Target population

The target population for the present study was staff nurses of selected hospital, Jalandhar i.e Civil Hospital.

Sample and Sampling technique

Sample: The sample were staff nurses in Civil Hospital, Jalandhar.

Sampling technique: Under Non - Probability method, Purposive sampling technique was used for the selection of samples.

Sample size: In the present study 60 staff nurses working in maternity units of Civil Hospital, Jalandhar.

Variables:

- **Socio demographic variables:** Age, gender, religion, marital status, educational status, total clinical experience in years, any exposure to patient suffering from TORCH infection, which type of infection patient suffered and any in service education program attended on TORCH infections.
- **Research variables:** knowledge of staff nurses regarding TORCH infections.
- **Validity of tool:** The validity of tool was confirmed by expert's opinion regarding the relevance of items. Modification were socio demographic variables i.e., part -I and self-structured knowledge questionnaire i.e., part - II. The modification in the tool i.e., in English version were made as per valuable suggestions given by experts from the field of medicine and nursing.

Section I

Analysis of socio demographic variables by using frequency and percentage.

Table 1: Demographic and professional characteristics summary.

Socio - demographic variables	Frequency (f)	Percentage (%)	Socio - demographic variables	Frequency (f)
1	Age (in years)	a. 20 - 30	16	26.67
		b. 31 - 40	20	33.33
		c. 41 - 50	17	28.33
		d. 51 - 60	07	11.67
2	Gender	a. Male	06	10.00
		b. Female	54	90.00
3	Religion	a. Hindu	17	28.33
		b. Muslim	00	00.00
		c. Christian	11	18.33
		d. Sikh	32	53.34
4	Marital Status	a. Married	42	70.00
		b. Unmarried	18	30.00
		c. Divorced/Separated	00	00.00
		d. Widow/Widower	00	00.00
5	Education Status	a. GNM/Diploma in Nursing	37	61.67

		b. B.Sc. Nursing	13	21.67
		c. Post-basic B.Sc. Nursing	09	15.00
		d. M.Sc. Nursing	01	01.66
6	Total Clinical Experience (in years)	a. < 5 years	11	18.33
		b. 6 - 10 years	18	30.00
		c. 11 - 15 years	22	36.67
		d. > 15 years	09	15.00
7	Exposure to Patients with TORCH Infections	a. Yes	23	38.33
		b. No	37	61.67
7(a)	Type of TORCH Infection (if Yes)	a. Toxoplasmosis	03	13.04
		b. Rubella	09	39.13
		c. Cytomegalovirus	04	17.39
		d. Herpes Simplex	07	30.47
8	In-service Education Program on TORCH Infections	a. Yes	00	00.00
		b. No	60	100.00

Section II: Assessment of knowledge regarding TORCH infections among staff nurses.

Table - 2

Variable	Range	Mean Score	Mean Percentage (%)	Standard Deviation (SD)
Knowledge Score	13 - 26	18.55	30.91	± 3.061

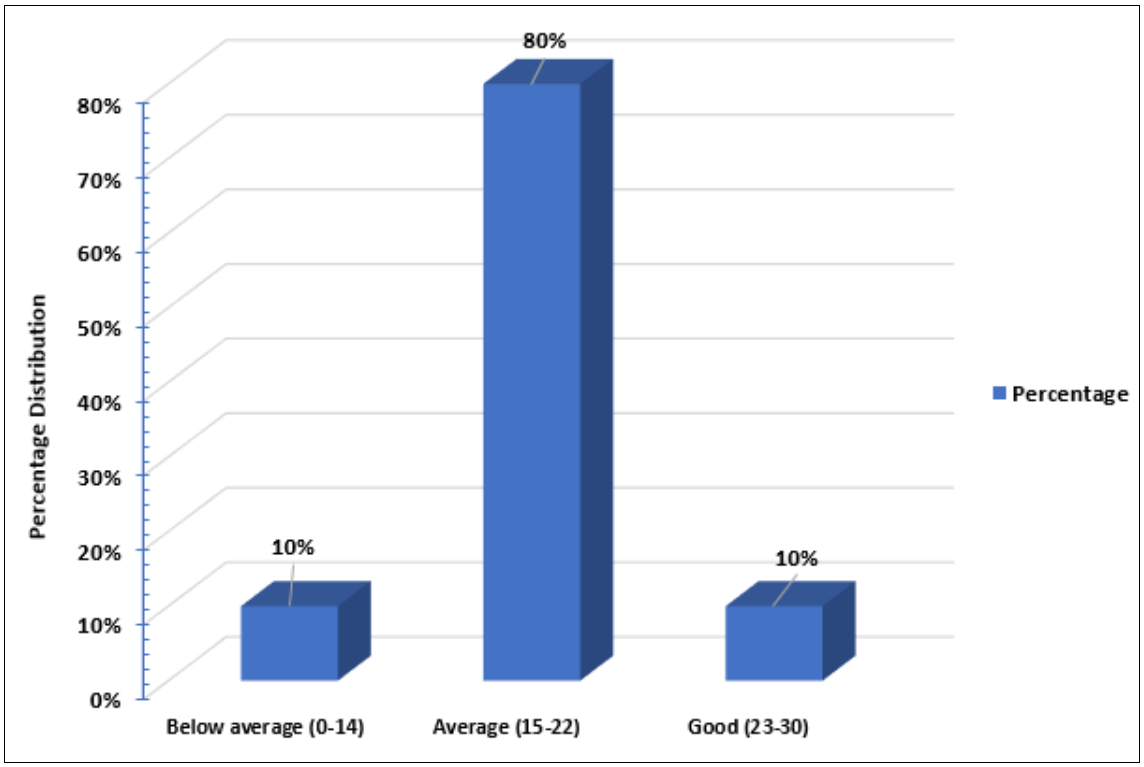

Fig 1: Percentage distribution of level of knowledge regarding TORCH infections among staff nurse.

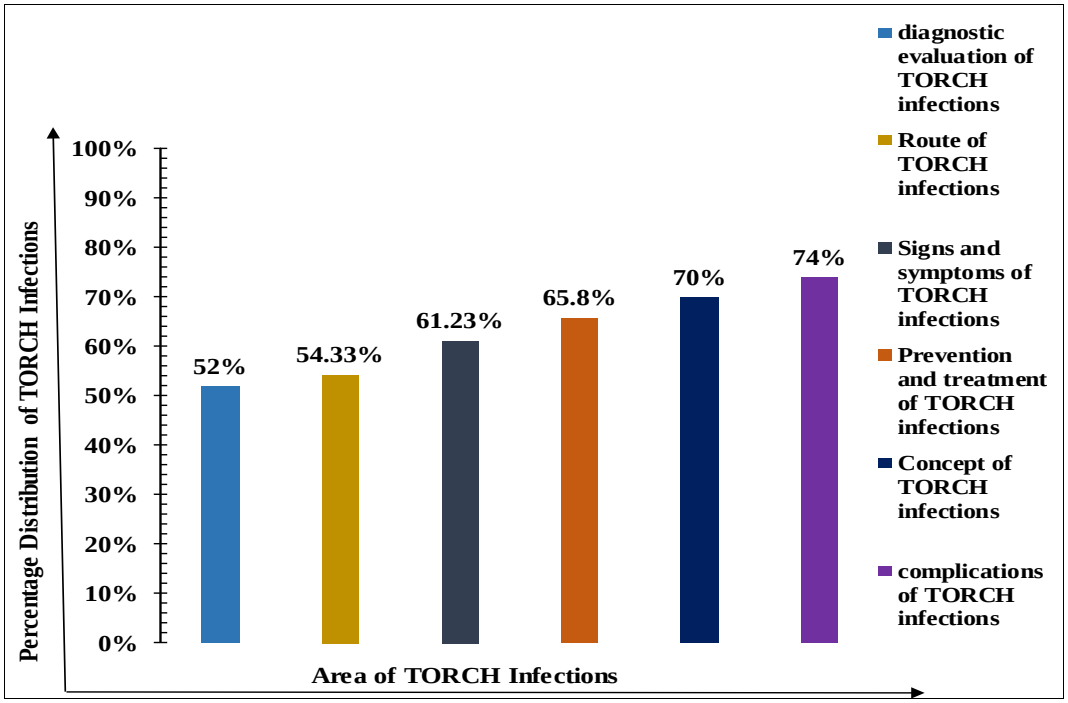

Fig 4: Area wise percentage distribution of TORCH infections

Section III: Association of knowledge with selected socio demographic variables by using Chi Square test.

Table 3: Knowledge level vs demographic factors.

Socio-Demographic Variables	Level of Knowledge				Df	χ^2	P-value
	Good	Average	Below Average				
1. Age (in years)					6	7.24NS	0.29
a. 20-30	02	13	01				
b. 31-40	00	18	02				
c. 41-50	03	16	03				
d. 51-60	01	11	00				
2. Gender				2	2.19NS	0.33	
a. Male	00	06	00				
b. Female	06	42	06				
3. Religion				6	6.18NS	0.40	
a. Hindu	00	16	01				
b. Christian	01	10	00				
c. Sikh	05	22	05				
4. Marital Status				2	1.24NS	0.53	
a. Married	05	32	05				
b. Unmarried	01	16	01				
5. Educational Status				6	10.11NS	0.12	
a. GNM/Diploma Nursing	03	29	05				
b. B.Sc. Nursing	01	11	01				
c. Post-basic B.Sc. Nursing	01	08	00				
d. M.Sc. Nursing	01	00	00				
6. Total Clinical Experience				6	4.28NS	0.63	
a. ≤ 5 years	02	08	01				
b. 6-10 years	01	16	01				
c. 11-15 years	02	16	04				
d. >15 years	01	08	00				
7. Exposure to TORCH Patients				2	1.54NS	0.46	
a. Yes	03	19	01				
b. No	03	29	05				
If yes, Type of Infection				6	4.09NS	0.66	
a. Rubella	03	04	02				
b. Toxoplasmosis	00	01	02				
c. Cytomegalovirus	01	03	00				
d. Herpes Simplex Virus	02	03	02				

Result

Section I: Description of socio demographic variables

More than staff nurses 20 (33.33%) were in age group of 31-40 years, in gender 54(90%) staff nurses were females, staff nurses 32 (53.33%) belonging to Sikh religion, staff nurses 42 (70%) were married, education of staff nurses 37 (61.67%) were GNM nursing, staff nurses 22 (36.67%) were had total clinical experience 11 - 15 years, staff nurses 37 (61.67%) were not had any exposure to TORCH infections, staff nurses 37 (61.67%) had not seen TORCH infection patient, none of staff nurses 60 (100%) were in-service education.

Section II: Assessment of knowledge regarding TORCH infections among staff nurses.

Objective I: To assess the knowledge regarding TORCH infections among staff nurses.

1. Mean knowledge score regarding TORCH infections among staff nurses was 18.55 with mean percentage of 30.91%.
2. Majority of staff nurses 48 (80%) were having average knowledge regarding TORCH infections.

Section III: Association of knowledge with selected socio demographic variables by using chi square test

Objective 2: To determine the association of knowledge regarding TORCH infections among staff nurses with selected socio demographic variables.

Association of knowledge regarding TORCH infections among staff nurses with socio demographic variables such as age, gender, religion, marital status, educational status, Total clinical experience, any exposure to patient suffering from TORCH infection, if yes, the type of infection which patient suffered, Any In-service education program attended on TORCH infection had calculated with chi square test less than the table value which was found to be statistically non-significant at $p<0.05$ level.

Limitations

Sample comprised of 60 staff nurses working in maternity units, therefore it is difficult to make broad generalization.

Conclusion

The conclusion of the present study revealed that most of the staff nurses had an average knowledge regarding TORCH infections, out of which the least knowledge was related to diagnostic evaluation of TORCH infections followed by related to routes of TORCH infections and related to sign and symptoms of TORCH infections.

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