Journal of Rare Cardiovascular Diseases
ISSN: 2299-3711 (Print) | e-ISSN: 2300-5505 (Online)
www.jrcd.eu
RESEARCH ARTICLE

Effectiveness of IEC Regarding Hypothyroidism During Pregnancy on Knowledge and Attitude Among Antenatal Mothers with Hypothyroidism

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Article History
Received: 10.04.2025
Revised: 14.05.2025
Accepted: 05.06.2025
Published: 08.07.2025

Abstract: Introduction: The current study was aimed to assess the effectiveness of information, education and communication (IEC) regarding the management of hypothyroidism during pregnancy.The current study conducted at Srine Medical Foundation, Kanchipuram to assess and compare the results ofpre-test and post-test level on knowledge and attitude among antenatal mothers with hypothyroidism,and to associate the effectiveness of IEC and post-test level of knowledge and attitude regarding hypothyroidism among antenatal mother's demographic variables. Methodology: In this study, Wiedenbach's helping art of clinical nursingtheory was followed to interpret the conceptual framework. Further, the Quasi experimental pre-test and post-testdesign was adopted. In total of 60 antenatal mothers, 30 samples for each experimental and control group were assigned. Further, a structuredquestionnaire was prepared to assess the level of knowledge, attitude, demographic and obstetrical variables of antenatalmothers, and 3-Point rating scale was used to examine the attitude of antenatal mothers. Results: Considering the pre-test level of knowledge regarding hypothyroidism amongantenatal mothers the results revealed that, in study group majority 28(93.3%) of themhad inadequate knowledge, 2 (6.7%) had moderate knowledge and none of them hadadequate knowledge, whereas in control group 27(90%) of them had inadequate knowledge, 3 (10.0%) had moderate knowledge significantly ($p < 0.001$). The Pearson's correlation coefficient has showed the r value was 0.87 for knowledge and 0.82 for attitude. Conclusion: Significant improvement on knowledge and attitude was found among antenatal mothers after implementation of IEC when compared to pre-test and post-test levels.

Keywords: Antenatal mothers, Hypothyroidism, Knowledge, Attitude and Demographic variables.

INTRODUCTION

Pregnancy is a period that places great physiological stress on both the mother and the fetus. When pregnancy is compounded by endocrine systems and disorders like hypothyroidism, the potential for maternal and fetal adverse outcomes can be immense. Therefore, careful attention has been focused on the adverse fetal outcomes' consequent to hypothyroidism.[1]Hypothyroidism is a common endocrine disorder resultingfrom deficiencyof thyroid hormone due to low levels of thyroid hormone (TH) and thyroid stimulating hormone (TSH) with varied aetiology and manifestations. Typically, autoimmune thyroid disease (Hashimoto thyroiditis) is the most common cause of hypothyroidism. But globally,it has been widely known that the lack of iodine in the diet is the most common cause. The patient presentation can vary from asymptomatic disease to my edema coma. Day by day, the prevalence of hypothyroidism has been increasing worldwide including Indians. Women are more likely to have thyroid disorders than men to have both hypothyroidism and hyperthyroidism. Today, the diagnosis of hypothyroidism is easily made with simple blood tests and can be treated with exogenous thyroid hormone.[2] It is a primary process in which the thyroid gland is unable to produce sufficient amounts of thyroid hormone.[3] Worldwide, iodine deficiency remains the foremost cause of hypothyroidism. Hypothyroidism may also be drug-induced or otherwise iatrogenic some, but not all, studies have indicated that low vitamin D levels can be linked to autoimmune thyroid diseases, such as Hashimoto thyroiditis and Grave's disease.[4] Today, the diagnosis of hypothyroidism is easily made with simple blood tests and can be treated with exogenous thyroid hormone.[5] Hypothyroidism develops roughly 16% of womens.[6] Women with hypothyroidism have decreased fertility, even if they conceive, risk of abortion is increased and risk of gestational hypertension, anemia, abruption placenta and postpartum hemorrhage is increased. Signs and symptoms which suggest hypothyroidism includeinappropriate weight gain, cold intolerance, dry skin and delayed relaxation of deep tendon reflexes. The risk of these of complicationsis greater in women with overt, rather than subclinical hypothyroidism.[7,8]

The prevalence of hypothyroidism during pregnancy is estimated to be 0.3- 0.5% for overt hypothyroidism and 2-3% for subclinical hypothyroidism. Auto immune thyroiditisis the commonest cause of hypothyroidism during pregnancy.[9] Data from recently published studies has underscored the association between prenatal and postnatal adverse effects including attention deficit and hyperactivity syndrome have been reported in mother with hyperthyroidism during pregnancy. Few reports of prevalence of hypothyroidism during pregnancy in India is around2.5%.[10] The present study was carried out in a larger cohort of pregnant women during the first trimester from a government hospital setting to majority

of women from lower socioeconomic status.The current study was aimed to assess the women with hypothyroidism regarding their knowledge and attitude. And also, it was aimed to assess the effectiveness of information, education and communication (IEC) regarding the management of hypothyroidism, and knowledge and attitude among antenatal mothers with hypothyroidism at Srine Medical Foundation, Kanchipuram (Figure 1). Particularly, it will(1) assess and compare the pre-test and post-test levels of knowledge and attitude among antenatal mothers with hypothyroidism in study group and control group, (2) assess and compare the of knowledge and attitude among antenatal mothers with hypothyroidism in study group and control group, (3) assess the effectiveness of IEC regarding hypothyroidism during pregnancy on knowledge and attitude among antenatal mothers in study group, and associate post-test level of knowledge and attitude regarding hypothyroidism among antenatal mothers with demographic variables.

RESEARCH METHODOLOGY

The study was conducted in Srine Medical Foundation, Kanchipuram, which is a 200 bedded hospital with an average of 70-80 antenatal cases per month. It refers to the entire group of people or objects to which the totally 60 antenatal mothers.The sample size was, out of which 30 mothers in study group and 30 mothers in control group.

***Independent variable*:** IEC regarding hypothyroidism during pregnancy.

***Dependent variables*:** Level of knowledge and attitude among antenatal mothers.

***Demographic and obstetrical variables*:** Age, Education, Occupation, Religion, Area of Residence, Familytype and Monthlyincome of the mother and the obstetrical variables include gestational weeks and age of menarche.

***Inclusion criteria*:** Antenatal mothers who are diagnosed to have hypothyroidism. Antenatal mothers, who are able to read, write and understand Tamil language.

***Exclusion criteria*:** Antenatal mothers who are not willing to participate.

Antenatal mothers with other complications like GDM (write full form), PIH (write full form), etc. This part is consisted of demographic variables of antenatal mothers such as age of the mother, religion of the mother, area of residence, family type of the mother, education qualification of the mother, occupation of the mother and obstetrical variables of antenatal mothers such as gestational weeks and age of menarche which were assessed by the structured questionnaire. Structured questionnaire was used to assess level of knowledge among antenatal mothers regarding hypothyroidism. It consisted of 20 questions. The right answers were given 1 mark and wrong answers were given zero.

Group	Pre-test	Intervention	Post-test
Studygroup	O1	X	O2
Control group	O1	-	O2

Keys

O1 = Pre-test level of knowledge and attitude regarding hypothyroidism during pregnancy among antenatal mothers in study group and control group.

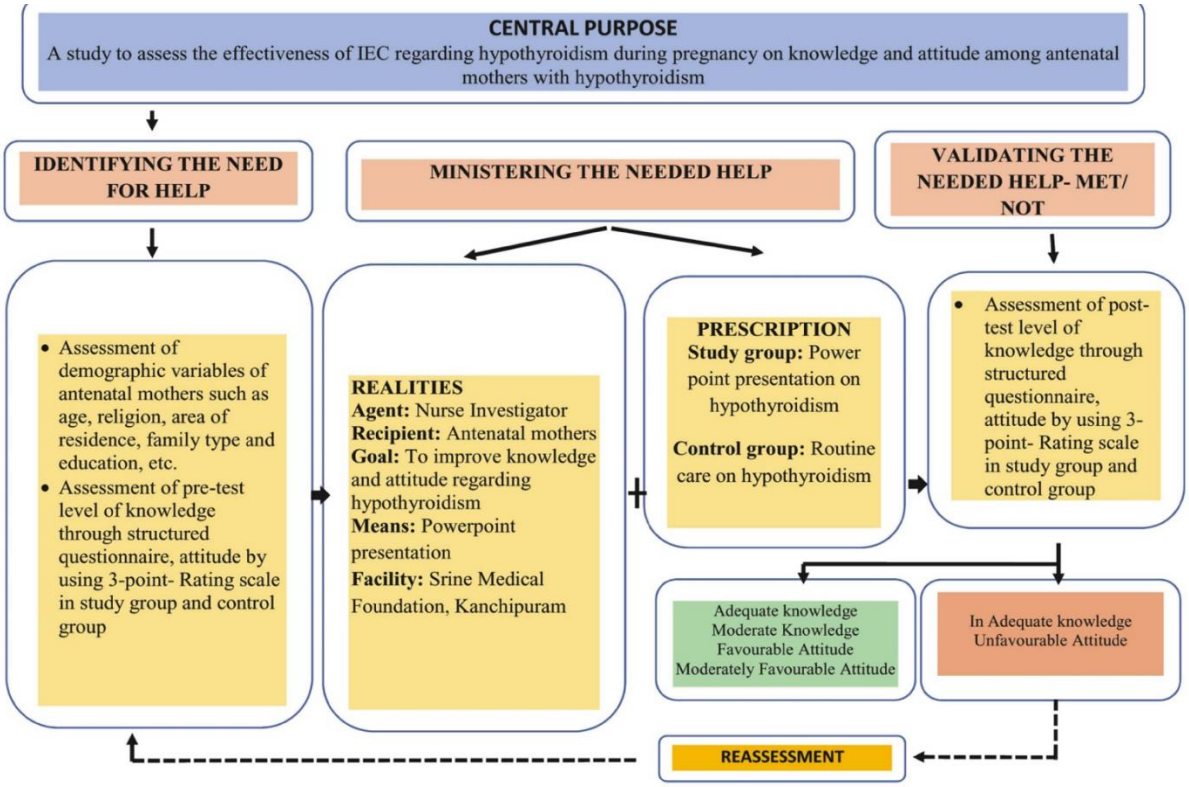

FIGURE 1: CONCEPTUAL FRAMEWORK BASED ON MODIFIED WIEDENBACK'S HELPING ART OF CLINICAL NURSING THEORY

X = IEC regarding hypothyroidism during pregnancy.
O2 = Post-test level of knowledge and attitude regarding hypothyroidism during pregnancy among antenatal mothers in study group and control group.

Scoring interpretation:

<50%	Inadequateknowledge
>50-70%	Moderatelyadequateknowledge
> 70%	Adequateknowledge

It consisted of 10 items, each item is awarded score 1 with the maximum score of 10.

Scoring interpretation:

0-4	Unfavourableattitude
5-7	Moderatelyfavourable attitude
8-10	Favourableattitude

The pilot study was conducted during 08.02.2024 to 17.02.2024 in Meenakshi Medical College and Research Institute and Hospital, Enathur, Kanchipuram., Tamil Nadu. The samples were selected by using purposive sampling technique. Based on inclusion criteria, six samples were selected, 3 for study group and 3 for control group. After pre-test, IEC was given to antenatal mothers. The post-test was done by using structured questionnaires for assessing the knowledge and 3-point rating scale for assessing the attitude of antenatal mothers.

Datacollection
Data collection is the process of collecting and analyzing information on relevant variables in a predetermined, methodical way so that one can respond to specific research questions, test hypotheses, and assess results. Formal permission as obtained from the Managing Director, Srine Medical Foundation, Kanchipuram, for conducting the study. The data collection was conducted for a period of 4 weeks from 26.02.2024 to 02.03.2024. A total of 60 antenatal mothers, 30 in control group and 30 in study group fitting the inclusion criteria were selected for the study by purposive sampling technique. The investigator, after self-introduction, explaining the purpose and benefits of the study, obtained written consent from the antenatal mothers. The antenatal mothers in both study group and control group were provided with

structured questionnaires for assessing their knowledge and 3-point ratingscale for assessingtheirattitude.Pamphlets were distributed after the lecture and their questions were clarified by the investigator. The post-test was conducted on the 7th day for both the groups. The average time taken to collect the data was about 15-20 minutes for each antenatal mother. The data collection was done according to the convenience of the hospital management and staff members.

Statistics

Independent and paired 't' test was used to compare the pre-test and post-test level of knowledge and attitude on hypothyroidism among antenatal mothers between study and control groups.ANOVA test was used to associate the post-test level of knowledge and attitude regarding hypothyroidism during pregnancy among antenatal mothers in study group and control group with demographic variables. The relationship and association were studied by chi-square test. The test scores were analyzed by statistical mean and standard deviation. The significance of the difference of mean scores were interpreted by students paired 't' test with the application of statistical package "SPSS"version (13) with the level of significance at5% ($p< 0.05$).

RESULTS AND DISCUSSION

Individual attitudes, social variables, and a lack of health-relatedknowledge influence healthcare-seeking behavior in both male and female, their age, sex, location, and food (iodine intake) are variables that affect the prevalence of thyroid problems, and other environmental variables may contribute to hypothyroidism in India. In the investigation, the demographic variables of the study group showed that 13 (43.3%) were between 18to23 years old, 14 (46.7%) were between 24 to 29 years, 3 (10%) were between 30 to 35years. Related to education, 12 (48%) were schooler, 12 (48%) were completed diploma, 4 (13.3%) were undergraduate, 2(6.7%) were post graduate. Regarding their occupation, 18 (60%) were homemakers, 8 (26.7%) were self-employee, 4 (13.3%) was private employee. About religion, 17 (56.7%) were Hindus, 10 (33.3%) were Muslims, 3 (10%) were Christians. With regard to area of residence, 10 (33.3%) were living in rural area, 20 (66.7%) were living in urban area. Regarding duration of marriage, 11 (36.7%) were below one year, 9 (30%) werebetween1to2years,9(30%)were between3to 4 years, 1 (3.3%) were between 5 to 6 years. Nature of marriage, 29 (96.7%) were belong to consanguineous marriage, 1 (3.3%) were belongs to nonconsanguineous marriage. Related to type of family, 8 (26.6%) were belons to joint family, 22 (73.3%) were belongs to nuclear family. Regarding monthly income, 19(63.3%)wereless than 5000Rs,8(26.7%) were between 6000 to 10000 Rs, 1 (3.3%)werebetween11000to15000Rs,2(6.6%)werebetween16000to20000. About gestationalweek,18 (60%) were below 7weeks,5(16.7%)were between8to 16years,7(23.3%)werebetween17to36years.Further,age of menarche,8(26.7%)werebelow13years, 22(73.3%)werebetween13to15years (Table 1). Incontrolgroupsamplesaccordingtothedemographic variables,10(33.3%)werebetween18to23years,16(53.3%)werebetween24to 29years,4(13.3%)werebetween30to35years.Relatedtoeducation,1(3.3%) were illiterate, 6 (20%) were schooler, 18 (60%) were completed diploma, 3 (10%) were undergraduate, 2(6.7%) were post graduate. Regarding the occupation, 19 (63.3%) were homemakers, 8 (26.7%) were self-employee, 3 (10%) was private employee. About religion, 12 (40%) were Hindus, 15 (50%) were Muslims, 3 (10%) were Christians. With regard to area of residence, 13 (43.3%) were living in rural area, 17 (50.7%) were living in urban area. Regarding to duration of marriage, 4 (13.7%) were below one year,4 (13.7%) were between1to 2years, 19(63.3%) were between 3 to 4 years, 3 (10%) were between 5 to 6 years. Relatedtonatureof marriage, 5 (16.7%) were belong to consanguineous marriage, 25 (83.3%) were belongs to non-consanguineous marriage. Related to type of family, 8 (26.6%) were belongs to joint family, 22 (73.3%) were belongs to nuclear family. Regarding monthly income 19(63.3%) were less than 5000 Rs, 8 (26.7%) were between 6000 to10000 Rs, 1 (3.3%) were between 11000 to 15000 Rs, 2 (6.6%) were between 16000to 20000 Rs. About to gestational week, 4 (13.3%) were below 7 weeks, 14 (36.7%) were between 8 to 16 years, 12 (40%) were between 17 to 36 years, Furthermore, about age of menarche, 1 (3.3%) were below 13 years, 28 (93.3%) were between13 to 15 years, 1 (3.3%) were above 15 years (Table 1).

Typically, one-third of pregnant women had a feeling of uneasiness/anxiety due to their hypothyroidism diagnosis. This feeling was more frequent in women during first pregnancy, and it was predicted by the self-reported lack of a previous explanation of the hypothyroidism diagnosis and its implications by a clinician.11A recent study reported that the overall prevalence of hypothyroidism was 16.5% (n=33) out of 200 pregnant women. Majority had subclinical hypothyroidism 75.7% (n=25) and 24.3% (n=8) had overt hypothyroidism (Dharma Raj).12Considering the pre-test level of knowledge regarding hypothyroidism among antenatal mothers in study group, majority 28(93.3%) of them had inadequate knowledge, 2 (6.7%) had moderate knowledge and none of them had adequate knowledge, where as in control group 27(90%) of them had inadequate knowledge, 3(10.0%) had moderate knowledge and none of them had adequate knowledge.In the study group, pre-test level of knowledge mean was 5.9 withSD 1.77, whilethe control group mean was 6.00 with SD 1.82. The calculated independent "t" value was 0.943 which was not statistically significant at $p<0.001$ level(Table 2).The pre-test level of attitude regarding hypothyroidism among antenatal mothers in the study group majority found that 30(100%) of them had unfavorable attitude, none of them had moderately favourable and favourable attitude, where as in control

group 29(96.7%) of them had unfavorable attitude, 1(3.3%) had moderately favourable attitude and none of them hadfavourable attitude.In the studygroup, pre-test attitudemean was 3.27 with SD 0.74, while the control group mean was 3.37 with SD 1.00. The calculated independent "t" value was 0.661 which was not statistically significant at p<0.001 level (Table 3). Further, the post-test level of knowledge regarding hypothyroidism among antenatal mothers in the study group showed that a majority23(76.7%) of them had adequate knowledge, 7(23.3%) had moderately adequate knowledge, none of them had inadequate knowledge, whereas in control group 26 (86.7%) of them had inadequate knowledge, 4(13.3%) had moderately adequate knowledge and none of them had adequate knowledge. In this study, the post-test level of knowledge on mean was 15.70 with SD 1.66, while the control group mean was 6.03 with SD 1.87. The calculated independent "t" value was 21.178 which was statistically highly significant at p<0.001 level (Table 4).Further, the post-test level of attitude regarding hypothyroidism among antenatal mothers in study group showed a majority 16(55.2%) of them had favourable attitude, 13 (44.8%) had moderately favourable attitude and none of them had unfavorable attitude, where as in control group 28(93.3%) of them unfavorable attitude, 2(6.7%) had moderately favourable attitude and none of them had favourable attitude. Results of the study group shows the post-test attitude mean was 8.73 with SD 2.23, while the control group mean was 3.43 with SD 1.17. The calculated independent "t" value was 11.547 which was statistically highly significant at p<0.001 level (Table 5).

In the study group, the comparison between post-test and pre-test level of knowledge mean was15.70 with SD 1.66, while the pre-test mean was 5.97 with SD 1.77.The calculated independent "t" value was 29.020 which was statistically highly significant at p<0.001 level.On the other hand, the post-testand pre-test level of attitude on hypothyroidism among antenatal mothers showed that the post-test level of attitude mean was 8.73 with SD 2.23, while the pretest mean was 3.27 with SD 0.74. The calculated independent "t" value was 13.854 which was statistically highly significant at p<0.001 level(Table 6).The association ofpost-test level of knowledge regarding hypothyroidism among antenatal mothers in study group shows a significant association found between the level of knowledge and education, whereas no association found with other demographic variables(Table 7). Further, in study group, the association of post-test level of attitude regarding hypothyroidism among antenatal mothers found a significant association in the age of menarche, whereas no association found with other demographic variables (Table 8). In this study, there was a significant association of post-test level of knowledge regarding hypothyroidism among antenatal mothers incontrol group with occupation, whereas no association found with other demographic variables (Table 9). However, there was no significant association found in the post-test level of attitude regarding hypothyroidism among antenatal mothers in control group with demographic variables in study group (Table 10). Majority of women are from lower socioeconomic status and living in village area. Therefore, they are homemakers, who also have limited formal education and financial resources, and married at young age. They are unknowing of hypothyroidism, different types of diseases and infections, and health issues due to malnutrition.

In the pre-test level of knowledge regarding hypothyroidism, 93.3% and 6.7% in study group, and 90% and 10.0% in control group had inadequate knowledge and had moderate knowledge, respectively. In attitude level, 100% in study group had unfavorable attitude when compared to control group like 96.7% of them had unfavorable attitude and 3.3% moderately favourable.Similar to our findings, Kumar et al.13 reported that the prevalence of thyroid disorders in pregnancy was 33.9%, with hypothyroidism (31.6%) being more common than hyperthyroidism (2.3%). Adverse maternal effects observed in the hypothyroid groupascomparedtotheeuthyroidgroupwerepreeclampsia (14.7%vs. 5.6%), anemia (7.4% vs. 6.1%), abortion (7.4% vs. 0.5%) and meconium-stained liquor (5.3% vs. 2.5%). Further, abortion (71.4%) was the main complication in the hyperthyroid group and also adverse neonatal outcomes such as low and verylow birth weight, low Apgar scores, respiratory distress syndrome, and meconium aspirationsyndrome among 347 pregnant women.The results obtained from the pre-test level of attitude between study and control groupsshowed that both the study (100%) and control (96.7%) groups had unfavorable attitude and 3.3% of control group had moderately favorable attitude. We found that 96% of pregnant women had a feeling of uneasiness/anxiety due to their hypothyroidism diagnosis. The studyfindings are consistent with the study done by Archana and Rosy[14] on assessment of knowledge of hypothyroidism around antenatal mothers by selecting 30 samples of first trimester by using convenience sampling technique.Similar to our findings, Begum and Kumudha,[15] reported that the age <30 years was predominant and was associated with a significant effect (p<0.01) on knowledge and attitude. Age andmarital status were strongly associated with the level of on knowledge and attitude about hypothyroidism, and the family history of thyroid disorder, occupational status, area of living, and number of comorbidities were significantly associated with the level of attitude and practice and non-significant association with knowledge and attitude regarding hypothyroidism.[15] It strongly corroborates the result of this study.

CONCLUSION

Most of the antenatal mothers were not aware of hypothyroidism during pregnancyand also had poor knowledge regarding thyroid disorders. The current study observed significant gain in the majority of antenatal

mothers with hypothyroidism in their knowledge and attitude after implementation of IEC.Since the women are from village and limited socio-economic status, it is recommended them to continue routine screening and prompt treatment and also allied with regular post-partum follow up, is required to ensure favourable maternal and fetal outcomes as suggested by Sahay and Nagesh.[1]Moreover, it should provide necessary awareness to the public to know the hypothyroidismand its virulence. The government should come forward to organizemany medical camps and/or public health programs and to making advertisements in television and newspapers about various types of common communicable and non-communicable diseases, which can develop their knowledge, change behavior and result in favorablehealth outcomes.

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