

Research Article

Effectiveness of Structured Teaching Programme on Knowledge of Adolescent Girls regarding Prevention and Management of Hypothyroidism at Selected Government High Schools, Hyderabad, T.S.

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A B S T R A C T

Background: Iodine deficiency is the most common cause of hypothyroidism, worldwide 90% of hypothyroidism with goitre. persons living with iodine-replete areas, causes are congenital, spontaneous because of chronic autoimmune disease (atrophic autoimmune thyroiditis or goitrous autoimmune thyroiditis [Hashimoto's thyroiditis]), or Iatrogenic because of goitrogens, drugs, or destructive treatment for thyrotoxicosis. The incidence of Hashimoto's thyroiditis is estimated to be 10-15 times higher in females. There are many disorders that result in hypothyroidism because thyroid hormones affects growth and development and many cellular process.

Method: A pre-experimental study was conducted among 100 adolescent Girls at selected Government High schools, Hyderabad, T.S. 2016 Data were collected using a self-structured and administered questionnaire after taking informed consent. Analysis and interpretation of data was done with the help of descriptive and inferential statistics.

Results: There was significant difference between the knowledge levels which indicated that the structured teaching programme was effective in improving the knowledge levels among adolescent girls. In the post- test majority of them 98% scored above average and only 2% scored average.

Conclusions: After structured teaching programme there was significant difference in the post test knowledge levels. The findings suggested that most of the adolescent girls have shown interest in participating in study, there was an increase in knowledge levels. the post test mean percentage (40.32) was higher than the pre-test mean percentage(11.72) of adolescent girls. In the post -test majority of them 98 percent scored above average and only 2 percent scored average.

Keywords: Adolescent Girls, Knowledge, Hypothyroidism, Prevention, Management

Introduction

Health is the level of functional or metabolic efficiency of a living organism. In humans it is the ability of individuals or communities to adapt when facing physical, mental or social challenges. The World Health Organization (WHO) defined health in 1948 constitution as “state of complete physical, mental, and social well-being and not merely an absence of disease or infirmity.” This definition “complete” definition that correlates health and personal satisfaction. Thyroid is a butterfly-shaped gland just above the collarbone. It is one of the endocrine glands, which produce thyroxin hormone. Thyroid hormone controls the metabolic activity in the body. When there is decreased production of thyroxin it leads to hypothyroidism it is mainly due. to iodine deficiency. Thyroid disorders are the most prevalent of medical conditions. Their manifestations vary considerably from area to area and are determined by the availability of iodine in the diet.¹

The concept of the metabolic syndrome has now been in existence for several decades. The prevalence of the individual components of the syndrome varies among populations. Differences in genetic background, diet, levels of physical activity, population age and sex structure, levels of over and under nutrition all influences the prevalence of both the metabolic syndrome and its components. An estimated 108 million people in India suffer from endocrine and metabolic disorders.

Thyroid disorders are the most common among all endocrine diseases in India. Iodine is the essential element in the daily intake, it helps in the synthesis of thyroxin hormone production from the thyroid gland daily requirement is 100-150 micrograms. Low intake of iodine leads to reduction of thyroxin production that is called Hypothyroidism.²

Iodine deficiency is the most common cause of hypothyroidism, worldwide 90% of hypothyroidism with goitre. persons living with iodine-replete areas, causes are congenital, spontaneous because of chronic autoimmune disease (atrophic autoimmune thyroiditis or goitrous autoimmune thyroiditis [Hashimoto's thyroiditis]), or iatrogenic because of goitrogens, drugs, or destructive treatment for thyrotoxicosis. Screening for congenital hypothyroidism prevents mental retardation in children. Hashimoto's thyroiditis are the most common cause of hypothyroidism in the India. The incidence of Hashimoto's thyroiditis is estimated to be 10-15 times higher in females. There are many disorders that result in hypothyroidism because thyroid hormones affects growth and development and many cellular process. Inadequate thyroid hormone is wide spread in consequences for the body. The hypothyroidism symptoms can vary from person to person. it includes fatigue, weight gain, puffiness of face,

cold intolerance, joint and muscle pain, constipation, dry skin, thinning hair, decreased sweating, irregular menstrual periods and fertility problems, depression, cardiovascular effects, hyperlipidemia, neurological and neuropsychiatric effects. Hypothyroidism common in women than men for two reasons. Effects of female hormonal imbalance are the another reason to develop hypothyroidism. So adolescent girls should have an awareness about the prevention and management of hypothyroidism so that one can prevent the further complications associated with this disease in puberty, in a woman's life.³

Methodology

Research approach: quantitative approach The research design adopted for the present study is pre experimental “one group pre test-post test design” in this design the total sample will be taken as a one group and is pre tested. After pre-test the independent variable will be introduced to the complete sample irrespective of pre-test scores(dependent variable). The independent variable is structured teaching programme. The effectiveness of independent variable was tested with the help of post-test, after one week. in Hyderabad district total 118 Govt upper primary and secondary schools are present, it is sub divided into 12 zones, each zone is considered as one cluster, by using probability cluster sampling method, the researcher selected Nampally cluster in simple random technique. In that 14 government upper primary schools are present, By using simple Random sampling technique the researcher selected Govt Girls High school Vidya Bhavan. In Total 300 students systematic random technique was used by the researcher to select the subjects. school strength of 400 girls. Classes from 6th to 10th both urdu and English medium each class having 2 section A&B and each section having strength of 40 members, school going girls age group ranges from 12-16 years. They are studying 7th to 10th classes The sample size consists of 100 adolescent girls, after administering structured teaching programme 1 week data collected by structured questionnaire. Tool was developed by developed with the help of extensive review of literature from various text books and journals and discussions with experts in the field of nursing and Research. The questions for the present study are divided into part-A - demographic variables and part-B - causes and signs and symptoms of hypothyroidism, diagnostic findings, prevention and management of hypothyroidism.

Questionnaires were distributed among adolescent girls in the class room, after obtaining informed verbal consent. The questionnaires were filled by the participants themselves on the spot and subsequently collected by the investigators. Data were compiled using MS Excel 2007 and analysed by with the help of descriptive and inferential statistics. Chi-square test was applied to calculate the

statistical association between different variables. The study was approved by the Institutional Ethics Committee.

Results

Table 1 shows that out of 100 adolescent girls 10(10%) belonged to the age group of 12years, 27(27%) were in age group of 13 years, 36(36%) were in age group of 14 years, 21(21%) were in age group of 15 years, only 6 (6%) were in age group of 16 & above.

Table 1. Distribution of sample according to the age

N=100

| Age in years | Frequency | Percentage |
|--------------|-----------|------------|
| 12 | 10 | 10 |
| 13 | 27 | 27 |
| 14 | 36 | 36 |
| 15 | 21 | 21 |
| 16 | 06 | 06 |

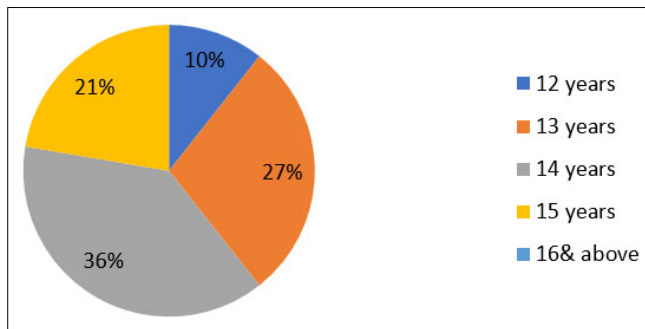


Table 2 shows that out of 100 adolescent girls 37(37%) belonged to the Hindu, 60(60%) were Muslim, only 3(3%) were Christian. and 61(61%) belonged to the nuclear family, 29(29%) were from joint family, only 10(10%) were from single parent.

Table 2. Distribution of sample according to the Religion and family type

N=100

| Variables | Frequency | Percentage |
|--------------------|-----------|------------|
| Religion | | |
| Hindu | 37 | 37 |
| Muslim | 60 | 60 |
| Christian | 03 | 03 |
| Any other specify | - | - |
| Family type | | |
| Nuclear | 61 | 61 |
| Joint | 29 | 29 |
| Single parent | 10 | 10 |

Table 3(a) shows that out of 100 adolescent girls 62(62%) were with income of up to Rs.5000/- , 21(21%) were with income of Rs.5001-10,000/- , 11(11%) were with income of Rs.10001-15,000/-, and 6(6%) were with income of above Rs.15000/- and out of 100 adolescent girls 20(20%) belongs to 7th class, 38(38%) were 8th class, and 42(42%) were 9th class.

Table 3(a). Distribution of sample according to the family Income per month and Educational status

N=100

| Variables | Frequency | Percentage |
|--------------------------------|-----------|------------|
| Family income per month | | |
| Up to 5000/- | 62 | 62 |
| 5001to 10,000/- | 21 | 21 |
| 10001 to 15,000/- | 11 | 11 |
| Above 15,000/- | 06 | 06 |
| Educational status | | |
| 7th class | 20 | 20 |
| 8th class | 38 | 38 |
| 9th class | 42 | 42 |
| 10th class | - | - |

Table 3(b). Distribution of sample according to history of hypothyroidism and family history of hypothyroidism

N=100

| Variables | Frequency | Percentage |
|-------------------------------------|-----------|------------|
| History of hypothyroidism | | |
| Yes | 03 | 03 |
| No | 97 | 97 |
| If yes taking treatment | - | - |
| Family H/O of hypothyroidism | | |
| Yes | 31 | 31 |
| No | 64 | 64 |
| If yes relation | 05 | 05 |

Table 3(b) shows that out of 100 adolescent girls 3(3%) were having hypothyroidism, but none of them were not taking treatment. 97(97%) were not having hypothyroidism. And girls 31(31%) belonged to family history of hypothyroidism, 64(64%) were no family history of hypothyroidism, 5(5%) were relation was mother.

Table 4. Cumulative Distribution of Knowledge Scores in Pre- test and Post -test

N=100

| Level of knowledge | Pre-test | Post test |
|--------------------|----------|-----------|
| | F % | F % |
| Below average | 74 74 | - |
| Average | 26 26 | 02 02 |
| Above average | - | 98 98 |

Table 4 shows that in the pre test 74(74%) adolescent girls have scored below average scores and 26(26%) of adolescent girls have scored average knowledge. In the post test majority of adolescent girls 98(98%) were scored above average knowledge and 2(2%) were scored average knowledge.

Table 5. Comparison of Pre-test and Post-test Scores of Knowledge of Sample

N=100

| | Mean | Standard deviation | t-value |
|-----------|-------|--------------------|---------|
| Pre-test | 11.72 | 4.00 | 45.88 |
| Post test | 40.32 | 4.64 | |

df =120; t value: 1.98; p<0.05

Table 5 shows that before structured teaching programme obtained mean score of knowledge of adolescent girls was 11.72 and 40.32 after structured teaching programme. standard deviation was 4.00 before intervention and 4.64 after intervention. The calculated t value was 45.88, which was higher than the table ' t ' value 1.98 at 120 df with 0.05 level of significance. It shows that there is a significant difference between pre- test knowledge scores and post test knowledge scores. Hence the research hypothesis (H1) was accepted. This indicates the effectiveness of structure teaching programme on prevention and management of hypothyroidism among adolescent girls.

Table 6 shows obtained chi-square value 2.6567 in pre test and in post test 2.5962 was significantly lower than the table chi-square value that is 15.51 at df 8 with 0.05

Table 6. Association between knowledge of sample and age

N=100

| Age | | Pre-test | | | Post test | |
|----------|---------------|----------|---------------|---------------|-----------|---------------|
| In years | Below Average | Average | Above Average | Below Average | Average | Above Average |
| 12 | F 07 | 03 | - | - | - | 10 |
| | % 07 | 03 | - | - | - | 10 |
| 13 | F 20 | 07 | - | - | 01 | 26 |

level of significance. It shows there was no significant association between the knowledge scores of adolescent girls and their age.

Table 7 shows obtained chi-square value 2.9152 in pre test and in post test 2.3353 was significantly lower than the table chi-square value that is 12.59 at df 6 with 0.05 level of significance. It shows there was no significant association between the knowledge scores of adolescent girls and their Religion.

Table 8 shows obtained chi-square value 0.1909 in pre test and in post test 0.7201 was significantly lower than the table chi-square value that is 9.49 at df 4 with 0.05 level of significance. It shows there was no significant association between the knowledge scores of adolescent girls and their type of family .

Table 9 shows obtained chi-square value 0.8736 in pre test and in post test 1.2444 was significantly lower than the table chi-square value that is 12.59 at df 6 with 0.05 level of significance. It shows there was no significant association between the knowledge scores of adolescent girls and their family income per month.

Table 10 shows obtained chi-square value 1.7141 in pre test and in post test 0.6654 was significantly lower than the table chi-square value that is 12.59 at df 6 with 0.05 level of significance. It shows there was no significant association between the knowledge scores of adolescent girls and their educational status.

Table 11 shows obtained chi-square value 0.1909 in pre test and in post test 0.7201 was significantly lower than the table chi-square value that is 9.49 at df 4 with 0.05 level of significance. It shows there was no significant association between the knowledge scores of adolescent girls and their history of hypothyroidism.

Table 12 shows obtained chi-square value 12.7344 in pre test table value was 9.49 at df 4 with 0.05 level of significance it was less than the obtained value. Hence association present history of hypothyroidism and knowledge scores. But there is no association between post test obtained scores 1.2406 and table value was 9.49 at df 4 with 0.05 level of significance.

| | | | | | | |
|-----------------|-----------|--------|---|----|-------------|----------------|
| | % 20 | 07 | - | - | 01 | 26 |
| 14 | F 25 | 11 | - | - | - | 36 |
| | % 25 | 11 | - | - | - | 36 |
| 15 | F 16 | 05 | - | - | 01 | 20 |
| | % 16 | 05 | - | - | 01 | 20 |
| 16 & above | F 06 | - | - | - | 02 | 04 |
| | % 06 | - | - | - | 02 | 04 |
| Characteristics | | | - | df | Table value | Inference |
| Age | Pre test | 2.6567 | - | 8 | 15.51 | No association |
| | Post test | 2.5962 | - | 8 | 15.51 | No association |

Table 7. Association between knowledge of sample and Religion

N=100

| Religion | Pre-test | | | Post test | | |
|-------------------|---------------|----------|---------------|---------------|-------------|----------------|
| | Below Average | Average | Above Average | Below Average | Average | Above Average |
| Hindu | F 25 | 12 | - | - | 01 | 36 |
| | % 25 | 12 | - | - | 01 | 36 |
| Muslim | F 48 | 12 | - | - | 01 | 59 |
| | % 48 | 12 | - | - | 01 | 59 |
| Christian | F 03 | - | - | - | - | 03 |
| | % 03 | - | - | - | - | 03 |
| Any other specify | F - | - | - | - | - | - |
| | % - | - | - | - | - | - |
| Characteristics | | χ^2 | df | - | Table value | Inference |
| Religion | Pre test | 2.9152 | 6 | - | 12.59 | No association |
| | Post test | 2.3353 | 6 | - | 12.59 | No association |

Table 8. Association between knowledge of sample and type of family

N=100

| Type of Family | Pre-test | | | Post test | | |
|----------------|---------------|---------|---------------|---------------|---------|---------------|
| | Below Average | Average | Above Average | Below Average | Average | Above Average |
| Nuclear | F 45 | 16 | - | - | 01 | 60 |
| | % 45 | 16 | - | - | 01 | 60 |
| Joint | F 22 | 07 | - | - | 01 | 28 |
| | % 22 | 07 | - | - | 01 | 28 |
| Single parent | F 07 | 03 | - | - | - | 10 |
| | % 07 | 03 | - | - | - | 10 |

| Characteristics | | χ^2 | df | Table value | Inference |
|-----------------|-----------|----------|----|-------------|----------------|
| Type of family | Pre test | 0.1909 | 4 | 9.49 | No association |
| | Post test | 0.7201 | 4 | 9.49 | No association |

Table 9. Association between knowledge of sample and family income per month

N=100

| Family income Per month | Pre-test | | | Post test | | |
|----------------------------|---------------|----------|---------------|---------------|----------------|---------------|
| | Below Average | Average | Above Average | Below Average | Average | Above Average |
| 5000/- | F 44 | 17 | - | - | 01 | 61 |
| | % 44 | 17 | - | - | 01 | 61 |
| 5001to10,000/- | F 16 | 05 | - | - | 01 | 20 |
| | % 16 | 05 | - | - | 01 | 20 |
| 10,001to15,000/- | F 10 | 02 | - | - | - | 11 |
| | % 10 | 02 | - | - | - | 11 |
| 15000&above | F 04 | 02 | - | - | - | 06 |
| | % 04 | 02 | - | - | - | 06 |
| Characteristics | | χ^2 | df | Table value | Inference | |
| Family income | Pre test | 0.8736 | 6 | 12.59 | No association | |
| Per month | Post test | 1.2444 | 6 | 12.59 | No association | |

Table 10. Association between knowledge of sample and Educational status

N=100

| Educational Status | Pre-test | | | Post test | | |
|-----------------------|---------------|----------|---------------|---------------|----------------|---------------|
| | Below Average | Average | Above Average | Below Average | Average | Above Average |
| 7th class | F 16 | 04 | - | - | - | 20 |
| | % 16 | 04 | - | - | - | 20 |
| 8th class | F 25 | 13 | - | - | 01 | 37 |
| | % 25 | 13 | - | - | 01 | 37 |
| 9th class | F 32 | 10 | - | - | 01 | 41 |
| | % 32 | 10 | - | - | 01 | 41 |
| 10th class | F - | - | - | - | - | - |
| | % - | - | - | - | - | - |
| Characteristics | | χ^2 | Df | Table value | Inference | |
| Educational | Pre test | 1.7141 | 6 | 12.59 | No association | |
| Status | Post test | 0.6654 | 6 | 12.59 | No association | |

Table 11. Association between knowledge of sample and History of hypothyroidism

N=100

| History of Hypothyroidism | Pre-test | | | Post test | | |
|---------------------------|---------------|---------|---------------|---------------|---------|---------------|
| | Below Average | Average | Above Average | Below Average | Average | Above Average |
| Yes | F 03 | - | - | - | - | 03 |
| | % 03 | - | - | - | - | 03 |
| No | F 73 | 24 | - | - | 02 | 95 |
| | % 73 | 24 | - | - | 02 | 95 |
| If yes taking | F - | - | - | - | - | - |

| | | | | | | |
|-----------------|-----------|----------|----|-------------|----------------|---|
| Treatment | % - | - | - | - | - | - |
| Characteristics | | χ^2 | df | Table value | Inference | |
| History of | Pre test | 0.1909 | 4 | 9.49 | No association | |
| hypothyroidism | Post test | 0.7201 | 4 | 9.49 | No association | |

Table 12. Association between knowledge of sample and family History of hypothyroidism

N=100

| Family H/O of Hypothyroidism | Pre-test | | | Post test | | |
|------------------------------|---------------|----------|---------------|-------------|---------------------|---------------|
| | Below Average | Average | Above Average | Below | Average | Above Average |
| Yes | F 25 | 06 | - | - | - | 31 |
| | % 25 | 06 | - | - | - | 31 |
| | F 28 | 36 | - | - | 02 | 62 |
| | % 28 | 36 | - | - | 02 | 62 |
| If yes | F 04 | 01 | - | - | - | 05 |
| Relationship | % 04 | 01 | - | - | - | 05 |
| Characteristics | | χ^2 | df | Table value | Inference | |
| Family H/O of | Pre test | 12.7344 | 4 | 9.49 | Association present | |
| Hypothyroidism | Post test | 1.2406 | 4 | 9.49 | No association | |

Discussion

Miss. Pillai Remya Radhakrishnan(2010)conducted research study on to assess the effectiveness of structured teaching programme on prevention of hypothyroidism among adolescent girls between the age group of 15-17 years in selected pre-university colleges at Bangalore. the study results showed that The adolescent girls may have inadequate knowledge regarding hypothyroidism and its prevention. Structured teaching programme will improve their knowledge and will help them to detect early signs and symptoms of hypothyroidism and prevent and control the disease in its early stages. . in the pre test 54(54%) adolescent girls have scored below average scores and 46(46%) of adolescent girls have scored average knowledge. In the post test majority of adolescent girls 90(90%)were scored above average knowledge and 10(10%) were scored average knowledge. In the pre-test the obtained mean value 9.72 standard deviation was 3.00. in the post-test the obtained mean value 30.32, standard deviation 3.64. To see if the value was statistically significant paired t test was computed and the calculated t value is 32.88. this value is found to be significant at 0.01 level with 120 df, higher than the table value 1.92 at 49 df which shows that there is an increase in knowledge scores of adolescent girls regarding prevention of hypothyroidism. And association between pre test knowledge scores with selected demographic variable found there is no association.⁴

In Our study The effectiveness of structured teaching programme was assessed by descriptive and inferential statistics. There was significant difference in between the knowledge levels before and after structured teaching programme among adolescent girls in selected government high school. The knowledge level was categorized as: below average: 1-15, average:16-30,above average :31-45.

The analysis with the distribution of demographic data of 100 adolescent girls , majority of them 10(10%) belonged to the age group of 12years, 27(27%) were in age group of 13 years, 36(36%) were in age group of 14 years, 21(21%) were in age group of 15 years, only 6 (6%) were in age group of 16& above. About religion 37(37%) of them were Hindus, 60(60%) were Muslims, only 3(3%) were Christians. Regarding family type 61(61%) belonged to the nuclear family, 29(29%) were joint family, only 10(10%) were single parent family. About family income per month 62(62%) were with income of up to Rs.5000/-, 21(21%) were with income of Rs.5001-10,000/- , 11(11%) were with income of Rs.10001-15,000/-, and 6(6%) were with income of above Rs.15000/- About educational status 20(20%) belongs to 7th class, 38(38%) were 8th class, and 42(42%) were 9th class. out of 100 adolescent girls 3(3%) were suffering with hypothyroidism, but none of them were taking treatment. 97(97%) were not having hypothyroidism. Out of 100 adolescent girls 31(31%) belonged to family history of hypothyroidism, 64(64%) were no family history of hypothyroidism, 5(5%)

were having family H/o of hypothyroidism and their relation was mothers.

The analysis with the knowledge scores of adolescent girls knowledge regarding prevention and management of hypothyroidism. the findings show that out of 100 adolescent girls, 74percent were having below average knowledge, 26 percent were having average knowledge in pre test. In the post test 2percent were having average knowledge, 98 percent were having above average knowledge. In the pre-test the obtained mean value 11.72, standard deviation 4.00. in the post-test the obtained mean value 40.32, standard deviation 4.64.

Conclusion

The following conclusions were drawn on the basis of the findings of the study, after structured teaching programme there was significant difference in the post test knowledge levels. The findings suggested that most of the adolescent girls have shown interest in participating in study, there was an increase in knowledge levels. the post test mean percentage (40.32) was higher than the pre-test mean percentage(11.72) of adolescent girls. There was significant relationship between the family history of hypothyroidism of the adolescent girls with knowledge regarding prevention & management of hypothyroidism, since obtained chi-square value 12.7344 in pre test, table value was 9.49 at df 4 with 0.05 level of significance. Out of 100 adolescent girls in the pre-test 74percent of adolescent girls scored below average and 26 percent scored average. In the post -test majority of them 98 percent scored above average and only 2 percent scored average.

Recommendation

The study can be replicated on a large sample to validate findings of the present study

A similar study can be done in different settings.

A study to assess the prevalence of hypothyroidism in school going children.

Limitations of the Study

Findings are limited to knowledge and could not be applicable for the practice.

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Conflict of Interest: None

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