



AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF AIR TIGHT CONTAINER OVER TRADITIONAL METHODS IN PRESERVING RECOMMENDED IODINE LEVEL IN THE HOUSEHOLD SALT USED AMONG MOTHERS OF SCHOOL GOING CHILDREN IN SELECTED COMMUNITY SETTING OF ROHTAS

Nursing Science

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ABSTRACT

Iodine is a mineral found in food which the body needs to make thyroid hormones. These hormones control the body's metabolism and many other important functions. Getting enough iodine is important for everyone, especially infants and women who are pregnant. Iodine deficiency can lead to a variety of health and developmental consequences known as iodine deficiency disorders (IDDs). The research approach selected was true experimental and the study was conducted at the village areas of Rohtas, Bihar. The total sample size was 150 (75 in study group and 75 in control group). Samples were selected by the using computer generated random sampling technique. The data collection was done by door to door survey method and the iodine level in salt was determined by iodometric test. The data analysis was performed by using descriptive and inferential statistics. The study has proved that the air tight container is more effective than the traditional method for preserving iodine level of the household salt.

KEYWORDS

Iodine, Air tight Container, Iodometric Test, Mothers of school going children.

INTRODUCTION

Iodine deficiency can lead to a variety of health and developmental consequences known as iodine deficiency disorders (IDDs). Iodine deficiency is a major cause of preventable mental retardation. It is especially damaging during pregnancy and in early childhood. In their most severe forms, IDDs can lead to cretinism, stillbirth and miscarriage; even mild deficiency can cause a significant loss of learning ability. Nearly 89 percent of people consume iodized salt says UNICEF reports.

Iodine-deficiency disorders, which can start before birth, jeopardize children's mental health and often their very survival. During the neonatal period, childhood and adolescence, iodine-deficiency disorders can lead to hypothyroidism and hyperthyroidism. Serious iodine deficiency during pregnancy can result in stillbirth, spontaneous abortion and congenital abnormalities such as cretinism - a grave, irreversible form of mental retardation that affects people living in iodine-deficient areas of Africa and Asia. Of even greater significance is the less visible, yet pervasive, mental impairment that reduces intellectual capacity at home, in school and at work.

Statement Of The Problem

"An experimental study to assess the effectiveness of air tight container over traditional methods in preserving recommended iodine level in the household salt used among mothers of school going children in selected community setting of Rohtas."

Objectives

1. To assess and compare the posttest level of iodine lost (ppm) in the household salt.
2. To determine the effectiveness of air tight container in preserving iodine level in the household salt.
3. To associate the posttest level of iodine lost (ppm) used among mothers of school going children with selected demographic variables.

Research Hypothesis:

H₁: - There will be a significant difference in the pre test level of iodine retained in the household salt used among mothers of school going children between the study and control group.

H₂: - There will be a significant difference in the post test level of iodine retained in the household salt used among mothers of school going children between the study and control group

H₃: - There will be a significant difference between the pretest and posttest level of iodine retained in the household salt used among mothers of school going children in the study group.

H₄: - There will be a significant association of posttest level of iodine retained in the household salt used among mothers of school going children with their demographic variables in the study and control group.

Assumptions

The study is based on the following assumptions

1. Air tight containers retain more iodine than traditional methods.
2. Adequate intake of iodized salt in the diet helps in better growth and development of the children.

METHODS AND MATERIALS

In the view of the nature of the problem and to accomplish the objectives of the study true experimental study (basic pretest posttest control group design) was used to evaluate the effectiveness of air tight container over traditional methods in preserving recommended iodine level in the household salt used among mothers of school going children in selected community setting of Rohtas.

Sampling Technique

Sampling technique defines the process of selecting the group of people or other elements with which to conduct a study. Computerized random sampling technique was used in this study.

Sampling Criteria

Inclusion Criteria

1. Mothers who are having school going children.
2. Mothers who are available at home during data collection period.
3. Mothers who can understand Hindi, English or Bhojpuri.

Exclusion Criteria

1. Mothers who are not willing to participate in the study.
2. Households with school going children with single parent (Father) are not included in the study.

An approval to conduct the study at community setting of Rohtas was obtained from Dean cum Principal, College of Nursing and the Head of the village Panchayat. Ethical reference number- NNC/IEC/MS/23/1090A.

Description Of The Tool

The tool used for the present study has two sections:

Section A: Demographic variable.

Demographic variables of the mothers were collected using structured questionnaires by interview method. The variables of the study included age, type of family, number of family members, number of children, mothers educational qualification, mothers occupation, family monthly income, family history of thyroid enlargement, importance of iodine and sources of information.

Section B: Iodimetric Titration Test.

As per WHO/UNICEF/ICCIDD criteria Iodine level of salt samples should be > 15 ppm at the consumer/households level. Proportion of households consuming adequately iodized salt (>15ppm) should be >90%.

Level of iodine in salt	ppm values
Adequate iodine	More than 15 ppm
Inadequate iodine	Less than 15 ppm
No iodine	0 ppm

Data Collection Procedure

A complete survey of villages was done by the investigator to identify all the households with school going children. From all the households with school going children 75 households were randomly selected by computer generated random number from each village one for study group and another for control group. All the households selected for study group were provided with one plastic air tight container with 1100 ml capacity and one packet of iodized salt 1000 gms on day 1 of the study. The mothers were instructed to store the salt only in that air tight container and advised to keep the lid tightly closed after every use.

The households selected for control group were only be provided with one packet of iodized salt 1000 gms on day 1 of the study and they were allowed to store the salt in whichever method of storage they generally practice. The mothers both in the study and control group were advised that if the 1000 gms of salt gets used up within 15 days, the last portion of the salt to be retained in the same container for testing.

The researcher on day 15 of the study collected 10 gms of salt from each household in a low density polythene zip lock cover. Then the salt specimen was transported to the lab and Iodimetric titration was done at Narayan Institute of Pharmacy, GNSU.

RESULTS

Study results revealed that with regard to the age of the mothers of school going children for the study group maximum 25(33.3%) were in the age group of above 50 years, whereas most of the participants 27(36%) belonged to age group of between 21-30 years in the control group. With respect to the residence of the mothers of school going children in the study group and control group 75(100%) were residing in rural areas.

With respect to the occupational status of the mothers of school going children in the study group 69 (92%) were homemakers and in the control group 75 (100%) were homemakers. With respect to the monthly family income of the mothers in study group 22(29.3%) were below Rs.10,000 and in the control group 26(34.7%) were in the income group of Rs15,001-20,000. With respect to the family history of thyroid enlargement 68 (90.7%) in the study group and 52(69.3%) in the control group had not been diagnosed with thyroid enlargement.

With respect to the knowledge on importance of iodine, in the study group 60(80%) were having adequate knowledge, whereas in the control group 58 (77.3%) were having adequate knowledge. With respect to the source of information, in the study group majority of them 34 (45.3%) received information from their family and friends, whereas in the control group 19 (25.3%) received information from mass media.

Assessment of posttest level of iodine (ppm) used in the household salt by the mothers of school going children showed that both in the study and control group the pretest iodine level (ppm) was adequate in 75(100%) of the samples. During the posttest in the study group majority of the participants 72% (n=54) had adequate iodine preservation in the household salt, 28% (n=21) had inadequate iodine preservation using air tight container. Among the control group participants, majority 52% (n=39) had inadequate iodine preservation, whereas 33.3% (n=25) had adequate iodine preservation and about 14.7% (n=11) had shown zero iodine preservation of iodine salt using traditional methods.

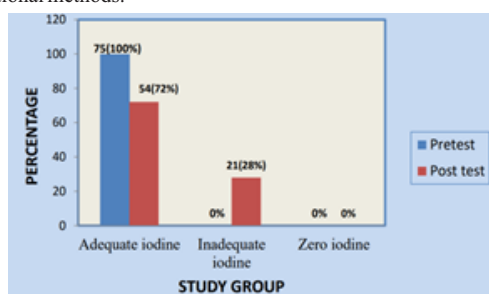


Figure1: Frequency and percentage distribution of iodine level in the study group

The pretest level of iodine (ppm) in the household salt used in the study group mean value was 26.45 with standard deviation 0.0 while in posttest mean value were 20.35 with standard deviation 5.67. The paired 't' test value showed that $t=9.23$, $df=73$ which was statistically significant at $p<0.001$

In the control group, pretest iodine level in the household salt, mean value was 26.45 with standard deviation 0.0 while in the posttest mean value was 10.97 with standard deviation 6.47. The Paired 't' test showed $t=9.354$, $df=74$ which was statistically not significant at $p<0.05$. Hence the level of iodine level in the study group is higher than the control group proving effectiveness of air tight container in the study group.

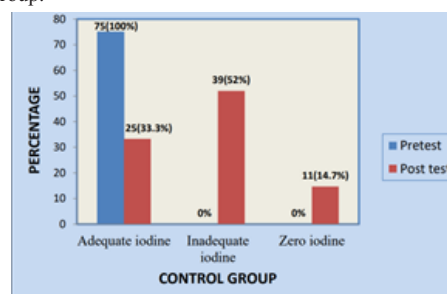


Figure 2: Frequency and percentage distribution of iodine level in the control group

CONCLUSION

The study findings verified that the mothers of school going children provided air tight container was found to be effectiveness in preserving recommended iodine level in the household salt. The investigators concluded that airtight container can be used as an intervention in preservation of iodine in the household salt.

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