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# Knowledge Regarding Benefits of Iodized Salt and Salt Preservation Practices among Home Makers of Selected Households at Kolar

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## Abstract

**Background:** Iodine is an essential constituent for thyroid function & necessary for normal growth, development, and well-being of all humans. And as per literatures, gap in the consumption of adequately iodized salt in community rural areas due to non-availability, poverty, poor knowledge of iodine deficiency diseases, and faulty storage practices. **Objectives:** to assess Knowledge regarding benefits of Iodized Salt and Salt Preservation Practices among Homemakers in Kolar. **Settings and Design:** Descriptive cross-sectional survey design using a structured self-administered questionnaire among 100 Homemakers of selected households at Kolar using a purposive sampling technique. **Results:** Majority of respondents (57%) Of participants are having inadequate knowledge, (43%) of participants are having moderate knowledge and none of the participants had adequate knowledge regarding benefits of Iodized salt. In salt preservation practices, (76%) are having good practices and (24%) participants are having Poor practices. **Conclusion:** An existing familiarity regarding benefits of iodized salt remained and without knowing its benefits majority were, consuming iodized salt. Hence, it is essential to educate & provide awareness about homemakers through nutrition education or knowledge about benefits of Iodized Salt and salt preservation practices. **Expected outcomes:** Homemakers and the community will be the biggest beneficiary.

**Keywords:** Iodine salt; Salt preservation; Practices; Homemakers

## Introduction

According to WHO guidelines, a daily iodine intake of 150mg is required to avoid iodine deficiency disorders and this can be attained by using effectively iodized salt, i.e. salt containing a minimum of 15parts per million (ppm) of Iodine.[1,2]

Universal salt iodization (USI) is a strategy recommended by the WHO and UNICEF joint committee on health policy since 1994 to ensure sufficient consumption of iodine by all individual.[3]

Three out of every four Indian households consume adequate Iodized salt, necessary for optimal mental and physical development, bright the progress made by the country in this regard, a recent survey showed.[4] The India iodine survey in the year 2018-19 was conducted by International Nutrition research center, a global nutrition organization, in collaboration with AIIMS, New Delhi, and Association for Indian coalition for the control of iodine deficiency disorders International Council for Control of Iodine deficiency Disorders (ICCIDD) and Karnataka.[5]

Globally, IDDs are associated with many thyroid related diseases including hypothyroidism, hyperthyroidism, goiter and cretinism, and also receive real risk of coronary artery diseases, autoimmune disorders, psychiatric disorders, cognitive impairment, and cancer.[6]

In India as per the survey 2009, 91 % of households had access to iodized salt, of which 71 % consumed sufficiently iodized salt.[7] another (9%) consumed salt with no iodine. There is wide rural and urban variation in household of tolerably iodized salt (83.2% in areas vs. 66.1% in rural areas).[8] Extensive difference was also seen across different states; with Chhattisgarh (31.6%), Karnataka (35.5%) and Jharkhand (41.4%) being the low coverage states and Manipur (98.3%), Meghalaya (98%) and Nagaland (97.1%) being high coverage states.[9,10]

## Objectives of the Study

1. To assess the knowledge and salt preservation practices regarding benefits of Iodized salt among homemakers of selected households.
2. To find the relationship between Knowledge level and salt preservation practices among homemakers.
3. To find the association between salt knowledge scores and selected demographic variables.
4. To find the association between salt preservation practice scores and selected demographic variables.

## Material and Methods

**Research Approach:** Quantitative survey approach.
**Research Design:** Descriptive Cross sectional survey design.

### Research Hypothesis

- **H 1:** There will be a significant association between Knowledge scores and selected baseline Characteristics.
- **H2:** There will be a significant relationship between Knowledge scores and salt preservation Practices among homemakers.
- **H3:** There will be a significant association between salt preservation practice scores and selected baseline Characteristics.

### Setting

- The region for the current study was selected Chowdeshwari nagara households at Kolar.

### Sample Size

- Sample size consists of 100 homemakers of selected households at Kolar.

### Sampling Technique

- A purposive sampling technique was adopted to collect the data for present study.

#### *Inclusion Criteria*

- Who were involved in preparing at least one meal per day.
- Homemakers who were willing to participate in the study.
- Employed and Homemakers unemployed homemakers.

#### *Exclusion Criteria*

- Who were unable to conversation in English or Kannada.

### Data Collection Tool

- **Section A:** Proforma on Sociodemographic variables
- **Section B:**
  - **Part A:** Structured Knowledge Questionnaire regarding benefits of Iodised salt
  - **Part B:** Observational checklist to assess the salt preservations practices.

### Method of Data Collection

- **STEP 1:** Ethical clearance was obtained from research and ethical committee of institution
- **STEP 2:**
  - Written permission will be obtained from the institutional ethical committee.
  - Permission will be obtained from the Medical officer of respective PHC.
  - Based on inclusion criteria sample is included.
  - Written consent will be obtained from the respondents/homemakers.
  - Knowledge about benefits of iodized salt is assessed by structured knowledge questionnaire.

## Plan for Data Analysis

The data gained was analyzed by exhausting descriptive Mean, Standard deviation and inferential statistics such as Chi square in completing the objectives of the study.

## Ethical Clearance

Ethical clearance was obtained from Institution and to conduct study permission was obtained from Medical officer of CHC and informed consent was taken from study participant before data collection.

# Results

**Table 1. Frequency**

| SI.No. | Demographic characteristics | Frequency | Percentage (%) |
|---|---|---|---|
| | **Age** | | |
| 1. | 18-34 years | 53 | 53% |
| | 35- 44 years | 47 | 47% |
| | **Types of Family** | | |
| 2. | Nuclear | 68 | 68% |
| | Joint | 32 | 32% |
| | **Place of residence** | | |
| 3. | Rural | 16 | 16% |
| | Urban | 84 | 84% |
| | **Family income** | | |
| 4. | 10,000-20,000 | 87 | 87% |
| | 21,000- 30,000 | 13 | 13% |
| | **Current occupation** | | |
| 5. | Working | 52 | 52% |
| | Not working | 48 | 48% |
| | **Form of salt used** | | |
| 6. | Crystalized salt | 97 | 97% |
| | Powdered salt | 03 | 3% |
| | **Type of salt used** | | |
| 7. | Iodized salt | 85 | 85% |
| | Non Iodized salt | 15 | 15% |
| | **Source information** | | |
| 8. | Mass media | 19 | 19% |
| | Family members | 81 | 81% |

As per the Results revealed that, (57%) of the study participants have suitable knowledge, (43%) of the study participants have moderate awareness and none of the participants have adequate knowledge.

Figure 3 Depicts that correlation coefficient value is 0.009. This reveals that negative correlation between knowledge and practice.

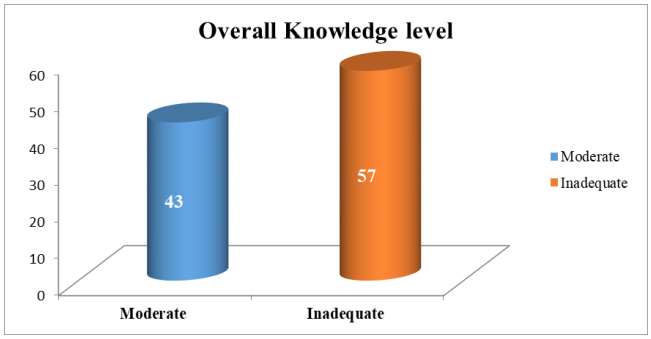


**Fig 1. Distribution of samples according to overall level of knowledge**

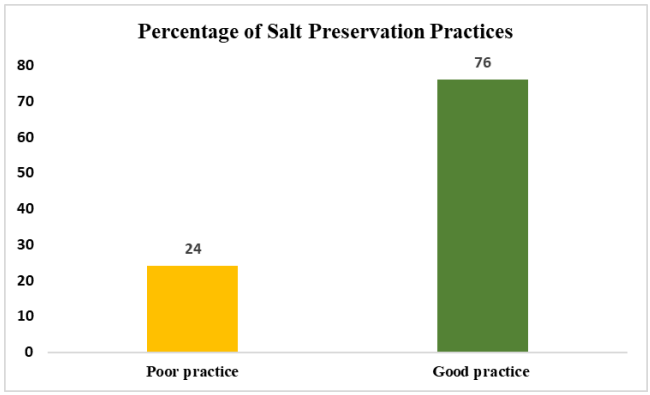


**Fig 2. Distribution of samples according to salt preservation practices**

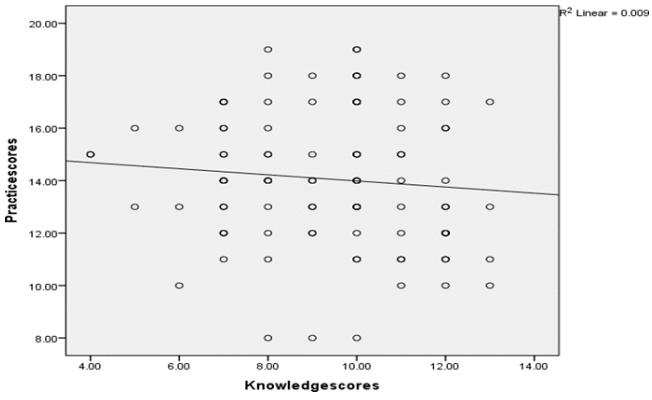


**Fig 3. Relationship between knowledge level and salt preservation practices among homemakers**

**Table 2. Association between demographic variables with knowledge regarding benefits of iodized salt (N=100)**

| SI. No | Demographic Variables | Knowledge level | | X2 calculated value | Df | P value | Inference |
|---|---|---|---|---|---|---|---|
| | | Below or equal to median (≤14) | Above median (>14) | | | | |
| | **Age** | | | | | | |
| 1. | 18-34 years | 30 | 23 | 0.0902 | 1 | 0.763 | NS |
| | 35- 44 years | 28 | 19 | | | | |
| | **Types of Family** | | | | | | |
| 2. | Nuclear | 38 | 30 | 1.50 | 1 | 0.22 | NS |
| | Joint | 22 | 10 | | | | |
| | **Place of residence** | | | | | | |
| 3. | Rural | 08 | 08 | 0.5004 | 1 | 0.479 | NS |
| | Urban | 50 | 34 | | | | |
| | **Family income** | | | | | | |
| 4. | 10,000-20,000 | 50 | 37 | 0.076 | 1 | 0.781 | NS |
| | 21,000- 30,000 | 8 | 5 | | | | |
| | **Current occupation** | | | | | | |
| 5. | Employment | 32 | 22 | 0.076 | 1 | 0.782 | NS |
| | Unemployment | 26 | 20 | | | | |
| | **Form of salt used** | | | | | | |
| 6. | Crystalized salt | 55 | 41 | 1.625 | 1 | 0.202 | NS |
| | Powdered salt | 1 | 3 | | | | |
| | **Types of salt used** | | | | | | |
| 7. | Iodized salt | 57 | 41 | 0.053 | 1 | 0.8168 | NS |
| | Non-Iodized salt | 1 | 1 | | | | |
| | **Source information** | | | | | | |
| 8. | Mass media | 13 | 3 | 4.57 | 1 | 0.3253 | SS* |
| | Family members | 44 | 40 | | | | |

## Discussion

A descriptive study design was approved to consider the knowledge concerning benefits and practices of Iodized salt among homemakers selected household Kolar.

A Community based cross-sectional study to assess the Knowledge and Utilization of Iodized Salt and Its Associated Factors at Household Level in Mecha District, Northwest Ethiopia. Data was collect- ed using a pretested and structured questionnaire by a face-to-face interview technique. A total of 700 head of households were included in the study, of which 639 (91.3%) were females. The overall occurrence of knowledge was 201 (28.7%). Accessibility of adequately iodized salt was 443 (63.3%). The proportion of proper utilization of adequately iodized salt at the household level was 180 (25.7%). A study concluded that the Knowledge, availability, and utilization of adequately iodized salt remain very low in the district. Concerned body should advance awareness and availability of adequately iodized salt and how to utilize it properly.

1. Knowledge regarding Benefits of iodized salt among homemakers was categorized into three i.e., Adequate knowledge (above75%) was 0%, moderate Knowledge (51-75%) was 43% and inadequate knowledge (≤50%) was 57%.
2. As per the second objective of the study find the suggestion between Knowledge and designated demographic variables was done and result revealed that, there is significance association be- tween source of information($x^2$ = 4.57, df=1, p = 0.325) is statistically significant.
3. As per the third objective of the study find the relationship between knowledge level and salt preservation practices among homemakers was done and result revealed that, there is negative correlation between knowledge level and salt preservation practices.
4. To find the association between knowledge scores and selected demographic variables was done and result formed that source of information is statistically significant is ($x^2$ = 4.57, df = 1 and p = 0.03253 (p<0.05)).

**Table 3. Association between salt preservation practice scores and selected demographic variables (N=100)**

| Sl. No | Demographic Variables | Poor Practices | Good Practices | X2 Value | P-Value |
|---|---|---|---|---|---|
| | **Age** | | | | |
| 01. | 18-34 years | 11 | 20 | 0.1207 | 0.728, NS at P<0.05 |
| | 35- 44 years | 27 | 42 | | |
| | **Types of Family** | | | | |
| 02. | Nuclear | 37 | 60 | 0.0286 | 0.865, NS at P<0.05 |
| | Joint | 1 | 2 | | |
| | **Place of residence** | | | | |
| 03. | Rural | 21 | 62 | 10.124 | 0.001463, SS* at p<0.05 |
| | Urban | 12 | 7 | | |
| | **Family income** | | | | |
| 04. | 10,000-20,000 | 34 | 29 | 0.0001 | 0.9933 NS at p<0.05 |
| | 21,000- 30,000 | 20 | 17 | | |
| | **Current occupation** | | | | |
| 05 | Employment | 4 | 51 | 5.7239 | 0.0167, * at p<0.05 |
| | Unemployment | 11 | 34 | | |
| | **Form of salt used** | | | | |
| 06. | Crystalized salt | 50 | 20 | 4.2386 | 0.0395, SS* at p<0.05 |
| | Powdered salt | 15 | 15 | | |
| | **Type of salt used** | | | | |
| 07. | Iodized salt | 35 | 55 | 0.3018 | 0.582738, NS at P<0.05 |
| | Non Iodized salt | 3 | 7 | | |
| | **Source information** | | | | |
| 08. | Mass media | 21 | 62 | 7.4128 | 0.006476, SS* at P <0.05 |
| | Family members | 10 | 7 | | |

5. As per the fifth objective of the study to find the association between practice scores and selected demographic variables was done and results that place of residence is ($x^2$ = 0.0286, p value = 0.865, p<0.05), Current Occupation is ($x^2$ = 5.7239, p value = 0.0167, p<0.05), form of salt used is ($x^2$ = 4.2386, p value = 0.0395, p<0.05), source of information is ($x^2$ = 7.4128, p value = 0.0064, p<0.05) these demographic variables are statistically significant.

## Nursing Implications

1. **Nursing Education:** As a nurse educator they are abundant opportunities for nursing professionals to educate School going children & degree students about importance of iodized salt and its benefits & ill effects on health. Curriculum based education can be incorporated on Adolescent health status.
2. **Nursing Administration:** Nurses plays major role in achieving the objective of reducing and creating awareness about Thyroid related problems and hormonal imbalances among patients in hospital and Community area.
3. **Nursing Research:** This study help nurse researcher to carry out studies on the improvement of health and knowledge of homemakers regarding benefits of Iodized salt and needs more research on Iodine.

## Conclusion

An existing familiarity regarding benefits of iodized salt remained and without knowing its benefits majority were, consuming iodized salt. Hence, it is essential to educate & provide awareness about homemakers as well the community through nutrition education or knowledge about benefits of Iodized Salt and salt preservation practices.

## Expected outcomes of study

- Community homemakers are the biggest beneficiaries
- Helps to know the Importance of salt intake and effects on health

## References


1) Andersson M, De Benoist B, Rogers L. Epidemiology of iodine deficiency: Salt iodisation and iodine status. *Best Pract Res Clin Endocrinol Metab*. 2010;24(1):1–11. Available from: https://doi.org/10.1016/j.beem.2009.08.005.
2) Chiba T, Hayashi Y, Ebe H, Hoshi K, Sato J, Sato S, et al. Anion-exchange red perovskite quantum dots with ammonium iodine salts for highly efficient light-emitting devices. *Nat Photonics* . 2018;12(11):681–687. Available from: https://doi.org/10.1038/s41566-018-0260-y.
3) Hęs M, Waszkowiak K, Szymandera-Buszka K. The effect of iodine salts on lipid oxidation and changes in nutritive value of protein in stored processed meats. *Meat Sci*. 2012;92(2):139–182. Available from: https://doi.org/10.1016/j.meatsci.2012.04.025.
4) Nista F, Bagnasco M, Gatto F, Albertelli M, Vera L, Boschetti M, et al. The effect of sodium restriction on iodine prophylaxis: a review. *J Endocrinol Invest*. 2022;45(6):1121–1138. Available from: https://doi.org/10.1007/s40618-022-01749-y.
5) Burgi H. Iodine excess. *Best Pract Res Clin Endocrinol Metab*. 2010;24(1):107–115. Available from: https://doi.org/10.1016/j.beem.2009.08.010.
6) Morse NL. Benefits of Docosahexaenoic Acid, Folic Acid, Vitamin D and Iodine on Foetal and Infant Brain Development and Function Following Maternal Supplementation during Pregnancy and Lactation. *Nutrients*. 2012;4(7):799–840. Available from: https://doi.org/10.3390/nu4070799.
7) Zimmermann MB, Boelaert K. Iodine deficiency and thyroid disorders. *Lancet Diabetes Endocrinol*. 2015;3(4):286–295. Available from: https://doi.org/10.1016/s2213-8587(14)70225-6.
8) Shaikh F, Jafry SIA, Khan AA. Factors affecting the consumption of iodized salt by pregnant women in Karachi. *Pak J Med Sci*. 2022;38((3part-I)):577–582. Available from: https://doi.org/10.12669/pjms.38.3.4991.
9) Giri B, Pandey S, Shakya S, Neupane BB, Kandel KP, Yadav CK, et al. Excessive iodine in iodized household salt in Nepal. *Ann N Y Acad Sci*. 2022;1514(1):166–173. Available from: https://doi.org/10.1111/nyas.14793.
10) Heen E, Romøren M, Yassin AA, Madar AA. Household Water Is the Main Source of Iodine Consumption among Women in Hargeisa, Somaliland: A Cross-Sectional Study. *J Nutr*. 2022;152(2):587–596. Available from: https://doi.org/10.1093/jn/nxab377.