The role of local mass media in promoting the consumption of iodized table salt

Gamze Çan, Ayşenur Ökten1 and Jackie Green2

Abstract

Iodine deficiency disorder (IDD) is currently an important public health problem in Turkey. The use of iodized salt is a simple and cheap solution. The purpose of this study was to determine the prevalence of iodized salt use in the Trabzon region and the effect of a local mass-media education program in increasing usage. The overall aim was to use the findings to inform future health management and health education activities, and shape further development of the IDD program. Prior to the intervention, the prevalence of iodized salt consumption was 54.5%. Following the 3-month education program it increased to 62.4%. There was a significant difference in the pre- and post-intervention findings ($P = 0.00237$). The results show that the use of local mass media is effective in raising the prevalence of iodized salt use. Local mass media could therefore be used as part of a national strategy to prevent iodine deficiency disorders.

Introduction

The particular geomorphology of Turkey causes iodine deficiency problems. According to criteria established by the European Thyroid Association (European Thyroid Association, 1985) no area of Turkey is free from the problem of goiter, although there is some variation between regions. Recent surveys indicate that many areas have goiter prevalence above 15% including Bolu, Bursa, Isparta, Kastamonu, Rize and Trabzon (Mocan and Tokel, 1984; Mocan et al., 1989).

Trabzon, on the Black Sea coast of northern Turkey, has a population of 200,000. Historically the prevalence of iodine deficiency disorder (IDD) has been particularly high in this area. A national study of 6–12 year olds conducted in 1995 reported 30.3% having a goiter discovered by palpation and in Trabzon this level reached 68% (IDD Data, 1997). An IDD control program is currently being developed in Turkey. A monthly reporting system for goiter has been set up by the Ministry of Health for Provincial Health Directorates. It is not yet, however, fully functional, and stronger support is needed both from policy makers and management staff.

The use of iodized salt is a simple, cheap solution to the problem of iodine deficiency. A program was developed in 1999 that aimed to increase the prevalence of iodized salt consumption. It targeted women in particular because of their role in controlling family food purchasing and consumption in the household.

Green has defined health education as ‘any combination of learning methods designed to facilitate voluntary adaptations of behavior conducive to health’ (Green, 1984). Health education may therefore be concerned with developing people’s awareness, knowledge, motivation and skills using a whole range of approaches—from one-to-one communication through to large-scale community or nationwide interventions (Tones and Tiford,
It is generally accepted that mass media have limited potential to achieve major behavior change (Tones, 1996). However, recent studies on a range of issues such as cardiovascular disease, tobacco education and diarrheal diseases have demonstrated they can be effective (Miller and Hirshhorn, 1995; Romer and Kim, 1995; Glanz et al., 1995; Elder et al., 1996; Mudde and de Vries, 1999).

In the context of IDD prevention, the use of mass media was felt to be appropriate for a number of reasons. The mass media, as implicit in the name, have the potential to reach large proportions of the population and groups which cannot readily be accessed through other channels. The intervention did not demand a major change in behavior, but merely substituting salt use with iodized salt use. Communication of Innovations Theory (Rogers and Shoemaker, 1971) suggests that the characteristics of the innovation are important factors in influencing whether an innovation is adopted. In this instance, the innovation is simple, does not involve a significant departure from existing practice and has no additional costs—either financial or any other negative consequences. There was already awareness of IDD in the community, which was reinforced through the media together with information about the benefits of iodized salt in resolving the problem. The Australian National Health and Medical Research Council’s Standing Committee on Health Promotion and Health Education Sub-Committee on the Media and Health Promotion identifies one of the roles of the media in promoting health as giving information and indeed emphasizes the rights of individuals to have access to information about health to enable them to make informed choices (National Health and Medical Research Council’s Standing Committee on Health Promotion and Health Education Sub-Committee on the Media and Health Promotion, 1984). Tones sees the one-way communication and lack of interpersonal interaction integral to mass-media approaches as limiting factors in communicating ideas and motivating individuals to change behavior (Tones, 1996). Clearly the opportunity for feedback and modification of messages afforded by one-to-one communication offers greater potential for communicating complex messages and influencing behavior. The inclusion of television and radio ‘phone-in’ sessions helped to resolve some of these difficulties—either directly or vicariously. Furthermore, the message being communicated in this instance was relatively simple.

During the period between February and May 1999 there were two television programs, each running for 3 h in the late evening between 21:00 and 24:00, and one live morning radio broadcast, which was transmitted from 10:00 to 12:00. The programs used a phone-in format and were subsequently repeated twice at prime time between 20:00 and 23:00. The key messages were reinforced by the researchers three and four times during subsequent day-time slots scheduled to run at various times of day. These daytime slots each lasted 2–3 h. The programs were designed to address the following areas:

- What is IDD?
- The cause of IDD.
- How IDD can be controlled.
- What individuals can do themselves.
- Raising awareness of iodized salt and what it is.
- How to use iodized salt.
- The storage of iodized salt.
- Is there any difference between iodized and non-iodized salt?

Messages included:

‘For your health use iodized salt’
‘Shortage of iodine may cause mental retardation—choose iodized salt for your children’
‘Iodized salt is no different from non-iodized salt; same taste and same price’

The purpose of this study, which was supported by UNICEF Trabzon Branch, was to explore the impact of this health education campaign using local mass media on the use of iodized salt.

**Methods**

The study population consisted of married women over the age of 19 in the Trabzon region. The
Promoting the consumption of iodized table salt

focus of the study was on married women because of their role in making decisions about which foods and cooking materials are used in the home. Their awareness of iodized salt, sources of information about it, use of iodized salt and any reasons for not using it were explored before the local mass-media campaign and again 1 week after the campaign. Information about the presence of goiter in the family and awareness of IDDs was also sought.

Data were obtained by face-to-face interviewing using a structured questionnaire. The same questionnaire was used for the pre- and post-intervention components of the study. Interviews were carried out in the respondents’ homes.

Based on anticipated maximum iodized salt use of 50 and 95% confidence levels with 4% deviation, the required sample size was calculated as 600 (Vaughan et al., 1989). The sample was selected by two-stage random sampling—the first stage involving selection of provincial family centers followed by selection of families, identified by family registration number. The number of individuals selected was proportional to the size of the health centers.

In total, 672 married women were interviewed in February 1999 prior to the intervention. Following the campaign, in May 1999 a further 768 women were interviewed.

Analysis of the findings was carried out using EpiInfo 6.0 and significance was tested using $\chi^2$.

Table I. Age groups and education levels of women

<table>
<thead>
<tr>
<th>Age groups (years)</th>
<th>First phase ($n = 672$)</th>
<th>Second phase ($n = 768$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\leqslant 19$</td>
<td>26</td>
<td>20</td>
</tr>
<tr>
<td>20–29</td>
<td>206</td>
<td>227</td>
</tr>
<tr>
<td>30–39</td>
<td>174</td>
<td>219</td>
</tr>
<tr>
<td>40–49</td>
<td>156</td>
<td>184</td>
</tr>
<tr>
<td>50–59</td>
<td>110</td>
<td>118</td>
</tr>
<tr>
<td>Education level (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$&lt;8$</td>
<td>417</td>
<td>475</td>
</tr>
<tr>
<td>$8+$</td>
<td>255</td>
<td>293</td>
</tr>
</tbody>
</table>

Table II. Knowledge and use of iodized salt

<table>
<thead>
<tr>
<th></th>
<th>Pre-campaign ($n = 672$)</th>
<th>Post-campaign ($n = 768$)</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know about iodized salt</td>
<td>67.1</td>
<td>72.9</td>
<td>0.01628</td>
</tr>
<tr>
<td>Use iodized salt</td>
<td>54.5</td>
<td>62.4</td>
<td>0.00237</td>
</tr>
</tbody>
</table>

Table III. Use of iodized salt by awareness of the mass-media campaign

<table>
<thead>
<tr>
<th></th>
<th>Iodized salt used</th>
<th>Iodized salt not used</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of the campaign</td>
<td>258 (66.6%)</td>
<td>129 (33.4%)</td>
<td>387 (100%)</td>
</tr>
<tr>
<td>Unaware of the campaign</td>
<td>221 (58.0%)</td>
<td>160 (42.0%)</td>
<td>381 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>479 (62.4%)</td>
<td>289 (37.6%)</td>
<td>768 (100%)</td>
</tr>
</tbody>
</table>

$P = 0.01324$. awareness of iodized salt from 67.1 to 72.9% ($P = 0.01628$).

Of the women who knew about iodized salt before the campaign, 81.2% actually used it. After the campaign, this increased and 85.5% of those who knew about iodized salt also used it.

The campaign also raised awareness of the importance of IDDs.

Results

The groups of women in the pre and post samples were similar in relation to basic demographic characteristics. There was no significant difference in age and educational attainments of the samples of women interviewed before and after the mass-media campaign, as shown in Table I.

Overall awareness and use of iodized salt before and after the campaign are shown in Table II. There was a significant increase in the use of iodized salt from 54.5% before the mass media campaign to 62.4% after ($P = 0.00237$). There was a smaller, but still significant, increase in

$P = 0.053233; bP = 0.97974$. awareness of iodized salt from 67.1 to 72.9% ($P = 0.01628$).

Of the women who knew about iodized salt before the campaign, 81.2% actually used it. After the campaign, this increased and 85.5% of those who knew about iodized salt also used it.

The campaign also raised awareness of the importance of IDDs.
Table IV. **Length of education and awareness of iodized table salt**

| Education level | Pre-campaign
d | Post-campaign
d | Unaware of iodized salt | Aware of iodized salt | Unaware of iodized salt | Aware of iodized salt |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;8 years</td>
<td>158 (37.89%)</td>
<td>259 (62.11%)</td>
<td>192 (40.42%)</td>
<td>283 (59.58%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8+ years</td>
<td>63 (24.71%)</td>
<td>192 (75.29%)</td>
<td>16 (5.46%)</td>
<td>266 (94.54%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>221 (32.89%)</td>
<td>451 (67.11%)</td>
<td>208 (27.08%)</td>
<td>560 (72.92%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ aP = 0.000416; bP = 0.000000. \]

Prior to the campaign 52.9% of the women who did not use iodized salt said this was because they did not consider IDD to be very important and there was a significant decrease to 37% after the campaign \((P = 0.03958)\). Before the campaign, a small minority (three persons) even felt that iodized salt was harmful and caused cancer, but following the mass-media program there were no reported beliefs about negative consequences.

Around half (50.4%) of women reported being aware of the mass-media campaign and 11.2% of women specifically cited it as their source of information. Those who were aware of the campaign were significantly more likely to use iodized salt as shown in Table III. The proportion of women who said that they had learnt about using iodized salt from their mother remained stable throughout the study at 22.4% before the intervention and 22.8% after.

There was a strong association between women’s general level of education and awareness of iodized salt both before and after the campaign as shown in Table IV.

The mass-media campaign itself appears to have had a major effect on the level of awareness in women who have been educated for more than 8 years, raising the proportion who are aware of iodized salt from 75.3 to 94.5%. In contrast, it has not improved the awareness in those women who are less educated. Women who were more highly educated were also more likely to act on their knowledge and actually use iodized salt, with 89.1% of those aware of iodized salt using it compared to 82.3% of women educated for less than 8 years, as shown in Table V.

Table V. **Aware women’s usage of iodized table salt**

<table>
<thead>
<tr>
<th>Education level</th>
<th>Use iodized salt</th>
<th>Do not use iodized salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;8</td>
<td>242 (82.31%)</td>
<td>52 (17.69%)</td>
</tr>
<tr>
<td>8+</td>
<td>237 (89.09%)</td>
<td>29 (10.91%)</td>
</tr>
<tr>
<td>Total</td>
<td>479 (85.54%)</td>
<td>81 (14.46%)</td>
</tr>
</tbody>
</table>

\[ P = 0.02264. \]

**Discussion**

The study has demonstrated that the use of mass media can be effective in IDD control by raising both the awareness of iodized table salt and its actual usage. Other studies have also demonstrated the effectiveness of public education through the mass media for this purpose (Pfaff *et al.*, 1997; Aghini-Lombardi and Antonangeli, 1998; Consiglio, 1998; Moscatelli and Baker, 1998). Factors contributing to success may have included the relative simplicity of the message and the fact that no major change in behavior was needed, merely substitution of salt by iodized salt. The design of the programs (notably the use of ‘phone-in’ sessions) addressed the limited opportunity for feedback, usually associated with the use of mass media.

The high prevalence of IDD in areas of Turkey, the severity of the problem and the simple solution afforded by iodized salt combine to create a strong imperative for informing people to enable them to ‘increase control over and improve their health’ (WHO, 1986). The mass media are an important
channel for achieving this. Tones and Tilford (Tones and Tilford, 1994) note de Tocqueville’s (de Tocqueville, 1961) observation that ‘...nothing but a newspaper can drop the same thought into a thousand minds at the same moment’. Developments in the electronic media since that time offer even greater potential.

However, the findings of the study reveal that women with higher levels of education were more aware of iodized salt at the outset and additionally that the campaign was also more effective for this group. The mass-media campaign did not have any impact on the awareness of women who had less than 8 years education. To tackle this inequity, further research is needed to explore what the barriers to communication are and identify strategies for reaching this group. Over 20% women report that they learnt about iodized table salt from their mothers. Such communication within families is an important way of disseminating information. Communication networks within the community may also serve a similar purpose. While it may not be possible to reach the whole community through mass media alone, this study has demonstrated that it can achieve improvements in both knowledge and behavior. Mass media can therefore contribute to accumulating a critical mass of the population who are informed about the benefits of iodized salt and use it.

References


Received on May 12, 2000; accepted on March 1, 2001