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Evaluation of Utilisation of Health Workers for Secondary Prevention of Oral Cancer in Kerala, India

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The utilisation of primary health workers (HWs) for cancer control in developing countries has often been suggested, based on the experience of feasibility studies in India and Sri Lanka. We initiated a project in 1988 to evaluate the long-term feasibility of using trained HWs in secondary prevention of oral cancer, to bring about earlier detection of oral cancer in the communities served by them. Two hundred and eighty-two HWs attached to 14 primary health centres (PHCs), serving approximately 0.92 million rural population in the northern half of Trivandrum district in Kerala, India, were trained in oral visual inspection to detect precancerous, malignant and other suspicious lesions of the oral cavity and refer them for confirmation and treatment. They were asked to examine subjects aged 35 years and above and to give person to person health education on tobacco in their target population. The HWs belonging to the PHCs serving approximately 1 million rural population in the southern half of Trivandrum district were not trained, and this region served as the control area. In addition to several process measures, stage distribution of oral cancer in subjects reporting from the intervention and control areas, as well as oral cancers referred by the HWs, as a proportion of total oral cancers from the intervention area, were the outcome measures evaluated. Only 9/282 (3.2%) trained HWs were motivated and they examined 17 812 eligible subjects in 3 years and referred 408 subjects with lesions; 258/408 (63.2%) referred subjects reported for further examination and ten oral cancers were detected among them. There were no differences in the proportions of various clinical stages of the 302 oral cancer patients from the intervention area and the 287 patients from the control area who reported for treatment between July 1989 and June 1992. Only ten (3.3%) of 302 oral cancers in the intervention area had been referred by trained HWs. The present study failed to motivate the HWs for oral cancer control. No trend towards earlier detection of oral cancers was observed in the intervention area. Further research is needed to develop an appropriate primary healthcare model for cancer control in developing countries.

Keywords: oral cancer, health workers, secondary prevention, control, screening

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INTRODUCTION

UTILISATION OF the services of the primary health workers (HWs) of the existing healthcare systems in developing countries like India, has often been suggested as a strategy for oral cancer control [1–5]. This is based on the experience from previous studies in India and Sri Lanka, indicating that trained HWs were capable of identifying malignant and premalignant lesions of the oral cavity and could be used for primary prevention of tobacco-related cancers.

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A similar opportunity has been assumed for HWs in the control of cervical and breast cancers. Visual inspection strategies and physical examination procedures have been suggested for practice by the HWs in the community [6, 7].

In 1988 we initiated a project in Trivandrum district, Kerala state, India, to train HWs in the detection of oral precancerous lesions and early cancer, and to evaluate whether they would carry out these activities as part of their routine activities on a continuing basis and whether a "downstaging effect" could be achieved among the oral cancers diagnosed in the community served by them. Our experience with this approach is described in this paper.

METHODS

Trivandrum district (Fig. 1) is the most southern district of Kerala state in southwestern India. It had a population of 2.6

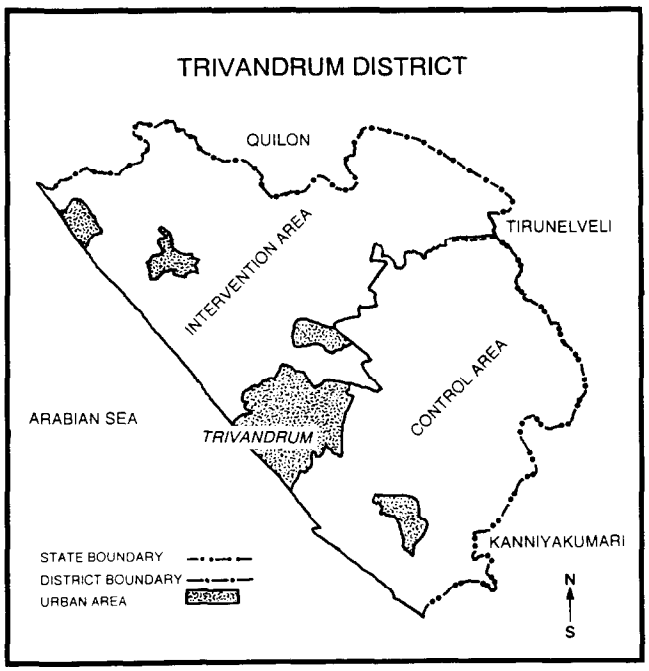

Fig. 1.

million in 1981 and 2.9 million in 1991. Seventy-five percent of the population live in rural areas. Trivandrum, the capital city of Kerala (population 0.52 million in 1991), and the Regional Cancer Centre (RCC) which caters for a population of 30 million people in southern India, are situated in this district.

The rural areas of Trivandrum district (excluding the five urban areas) are divided into 12 community development blocks (CDBs) for integrated development. The rural areas of the six northern CDBs, with a population of 0.92 million served by 14 primary health centres (PHCs), constituted the intervention area for the study. The rural areas of the six southern CDBs of the district (population 1 million) constituted the control area. The PHC, at the grass root level of the Indian healthcare delivery system caters for the needs of a rural population of 50–70 000. Each PHC is staffed with two to three medical officers (MOs) and 15–30 HWs. Each HW is responsible for the primary healthcare of approximately 5 000 people.

In the intervention area, 12 training sessions lasting 8 h each were conducted at PHCs by a faculty from the RCC, Trivandrum. Each of the 282 HWs attended an average of two training sessions, covering the following aspects: harmful aspects of tobacco, anti-tobacco health education, role of tobacco in oral cancer causation, methods in oral examination, natural history of precancerous lesions and oral cancer, their clinical significance, and diagnosis and treatment of oral cancer and oral premalignant lesions. The HWs were also given practical training in oral visual inspection to identify the different benign, premalignant and malignant lesions of the oral mucosa. A training guide with colour pictures of the different oral lesions and their descriptions was also given as a ready reckoner to help them in the field. An assurance was given by the state government that the trained HWs would not be transferred from their duty stations for many years.

The HWs serving in the PHCs of the southern CDBs (control area) were not given any training on the above lines.

The HWs in the intervention area were requested to examine the oral cavities of all subjects aged $\geqslant 35$ years and/or with tobacco/alcohol habits during their routine household visits, and to give person to person health education on tobacco with the help of the health education materials developed by the Community Oncology Division of the RCC. They were encouraged to refer subjects with lesions to the MOs of the PHC, or to a field clinic organised in their vicinity, or to the RCC directly. Twenty-seven field clinics were conducted on stipulated dates in the region covered by the intervention PHCs. The HWs were asked to keep a record of the number of people examined and the person to person health education carried out.

The MOs belonging to the PHCs in the intervention area were given orientation in the diagnosis and management of oral precancerous lesions and oral cancer. This was conducted at the RCC in a 1-day session. The topics covered included epidemiology and natural history of oral cancer, primary prevention of oral cancer, clinical features of oral precancerous lesions and cancer, diagnosis and staging, the role of surgery and vitamins in the management of oral precancerous lesions, the role of surgery, radiotherapy and chemotherapy in the management of oral cancer, prognostic factors and referral practices.

The hospital cancer registry at the RCC was responsible for identifying the subjects reporting from the intervention and control areas, and for documenting the details of their referral, stage distribution, treatment, response to treatment, and survival. The RCC is the only cancer treatment facility in Trivandrum district.

The following measures were used to evaluate the programme.

Process measures

(1) Number and proportion of trained HWs engaged in oral cancer detection.
(2) Number and proportion of subjects given health education on harmful aspects of tobacco.
(3) Number and proportion of subjects offered oral visual inspection by HWs and the proportion referred.
(4) Compliance of subjects for referral, treatment and follow-up.

Outcome measures

(1) Stage distribution of oral cancer in subjects reporting from the intervention and control areas for treatment at the RCC. The UICC composite stages were used for stage classification [8].
(2) Oral cancers referred by the HWs as a proportion of total oral cancers from the intervention area.

RESULTS

All the 282 HWs in the intervention area attended on average two 8 h training sessions. Eighty-seven were males (MHWs) and 195 were females (FHWs). Repeat training sessions of 2–3 h were conducted every 6–9 months during the second and the third year of the project. One hundred and sixty-seven (59.2%) of the 282 trained HWs were transferred from the intervention area during 1988–1991, in spite of the no transfer assurance given by the state government. The incoming HWs were trained later by the faculty.

Only 4/87 (4.6%) trained MHWs and 5/195 (2.6%) FHWs

actually performed anti-tobacco health education and oral visual inspection of eligible subjects among the population. Thus, they referred subjects with lesions to the PHCs, field clinics, and the RCC. They were the only motivated workers; the others did not show much interest in oral cancer control. Of the 276 000 eligible subjects 17 812 (6.5%) were examined by the HWs in 36 months. More than 90% of these subjects were covered by the nine motivated HWs.

The nine motivated HWs referred 408 subjects with suspected premalignant and malignant lesions over 36 months. The others did not refer any subjects; 258/408 (63.2%) referred subjects reported for further examination, confirmation and treatment. A vast majority of them reported in the field clinics.

The distribution of different lesions in the compliant subjects was: leukoplakia (34.5%), submucous fibrosis (20.5%), oral cancer (3.9%) and other lesions (41.1%). Five of the ten invasive cancers among the compliant subjects were in stages I and II.

The nine HWs identified 29 subjects who had previously been treated for oral cancer at the RCC, and four recurrences were documented among them.

The hospital cancer registry at the RCC identified 302 subjects from the intervention area and 287 subjects from the control area with oral cancer reporting for treatment between July 1989 and June 1992. The stage distribution of these oral cancers is shown in Table 1; 35.4% of the patients from the intervention area and 38.5% from the control area reported with stages I and II oral cancer. Only ten (3.3%) out of the 302 oral cancers in the intervention area had been referred by trained HWs.

DISCUSSION

The use of HWs for cancer control activities might be considered justified by the following postulates:

(1) HWs have a perceived role to play in public health, and the health services use them for a variety of tasks;
(2) possibility of integrating cancer control in existing health services;
(3) over-involvement of doctors/dentists in therapeutic services rather than in preventive services and health promotion efforts;
(4) oral, cervical and sometimes breast cancers are common cancers in many developing countries and could be cured if found in an early stage. Trained HWs have shown to be capable of detecting early oral lesions;
(5) tobacco habits are on the increase in many developing countries.

Previous studies conducted in Sri Lanka and India [1, 3, 4] showed that trained HWs are capable of doing a proper oral examination and identifying lesions. In the Sri Lankan study, 29 215 (33.6%) of the 87 277 eligible population aged >20 years were examined by 34 HWs, along with their routine activities, in 1 year [1]. They identified 1220 subjects with referable lesions and only 38.8% complied with referral. However, 614 of the referred subjects were examined following additional efforts and 565 had the following lesions: 60% had either leukoplakia or submucous fibrosis, 3% cancer, 26% other lesions, 11% no lesions.

Table 1.

Stage	Intervention area	Control area
I	36 (11.9%)	51 (17.7%)
II	76 (25.2%)	59 (20.6%)
III	86 (28.5%)	72 (25.1%)
IV	104 (34.4%)	105 (36.6%)
Total	302	287

Detection of oral cancer and premalignant lesions by the primary healthcare model was recently reproduced in Sri Lanka [4]. Of the 57 124 subjects aged ⩾20 years examined in 1 year by 36 HWs, 20 subjects with oral cancer and 1716 with oral precancerous lesions were identified among the 2193 (out of 3559) subjects who complied with referral.

In a study reported from Ernakulam district in Kerala, 42 HWs examined 33 937 eligible subjects in 9 months and referred 523 subjects with lesions [3]. Seventy-two percent complied with referral and 20 oral cancers were identified.

These studies addressed the short-term feasibility of using HWs in oral cancer detection. Our study was planned to evaluate the long-term feasibility of using HWs in secondary prevention of oral cancer, and to evaluate the outcome in terms of a shift in stage at presentation of oral cancers. Since the reported studies clearly indicated the feasibility of using HWs, our interest was to evaluate a model for using HWs in cancer control by means of health service research.

In contrast to the reported experience, the present study failed to motivate the HWs. Only a small proportion of the HWs identified oral lesions and referred them. Several reasons for the indifference on the part of the HWs may be thought of.

The attitude of 162 of the 273 HWs who were not motivated by the programme was ascertained by a social worker using a structured questionnaire. Twelve (4.4%) did not want to carry out these activities. Others considered it as an additional burden and they were more interested in attaining targets for family planning activities like motivating people for sterilisation, distribution of condoms, intra-uterine contraceptive devices (IUCDs) and immunisation. Their concern was to concentrate on young couples and children; they were not interested in visiting houses with old people who are at high risk for cancer. The proposed oral cancer project had neither a target nor incentives. The majority (136/162; 83.9%) of HWs said they would work for oral cancer detection if incentives were provided.

The HWs had been given posters and pamphlets with anti-tobacco health messages for demonstration/distribution in places like PHCs, subcentres and public places. Only nine HWs had taken pains to do this.

Another reason for poor participation cited was the absence of a government order making the programme obligatory. Although there was an assurance from the health authorities that the trained HWs would not be transferred for many years, 167/282 (59.2%) were transferred during the project period. Many HWs perceived this as a research programme of the RCC and the Directorate of Health Services was not interested in the programme.

The abolition of a permanent travelling allowance as part of a new payscale prompted the HWs to a "work to rule" protest. This coincided with the initiation of the project and may have affected the oral cancer programme to some extent.

HWs with tobacco habits were reluctant to carry out early detection. Fifty-two (60%) of the 87 MHWs and five (3%) of

the 195 FHWs had tobacco habits. Twelve MHWs stopped their habit due to the training they received, and they had not restarted when contacted 2 years later.

The nine motivated HWs were also interviewed. Three of them were motivated by a history of cancer in their family/neighbourhood, two revealed sociopolitical reasons. The other four HWs did the work out of interest and commitment. Incidentally, these were the best, with maximum productivity, for the other programmes as well.

The HWs pointed out the poor involvement and indifference of the medical officers of the PHCs. Seven male and three female doctors were interviewed on their attitude towards this programme. Only one doctor (an ENT surgeon) was interested; the others were not impressed by this approach and were pessimistic. Six of the seven male doctors were smokers.

The compliance of subjects to referral was 63.2%. A sample of 52 non-compliant subjects were interviewed and they gave several reasons for non-participation: fear of cancer, no faith in doctors/HWs/health services, fear of radiation or dental extraction, unwillingness to stop tobacco habits and financial constraints were the predominant reasons.

Our study indicates that only the motivated HWs have the commitment for cancer control activities. Incentives like good service entry may motivate more HWs. In the curricula of HWs there is no formal training in cancer and other chronic diseases. Incorporating topics such as primary prevention of tobacco-related diseases, dietary prevention of chronic diseases, and secondary prevention of accessible cancers may motivate them in their later career. The changing focus in healthcare from infectious diseases to chronic diseases as population ages should be impressed upon them during their basic training.

The need for motivating the medical officers cannot be overemphasized. A balanced approach in chronic disease control during the undergraduate training of medical students should be developed and implemented. We are currently administering a 2-day intensive course on cancer control to house surgeons during their training.

Although HWs are able to identify lesions and refer them, approaches to translate this as a sustainable practice, in the context of their numerous responsibilities, need to be developed.

The health administrators may not be prepared to assign additional responsibilities to HWs, unless the effectiveness of such an approach, without diluting the gains already achieved in primary care by the HWs, is demonstrated. Hence, there is need for more research to develop a primary healthcare model that could be effectively used for cancer control activities. An objective assessment of how the HWs' time is now distributed among various responsibilities may go a long way in redefining their role in a changing health and socioeconomic environment.

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