The Eradication of a Large Scabies Outbreak Using Community-Wide Health Education

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Abstract: The successful experience in eradicating a large outbreak of scabies in an underdeveloped Arabic village community in Western Galilee of about 3,000 people is reviewed.

In this village the number of cases of scabies increased over a five-year period to a maximum of 22 per cent of the entire village population, representing 66 per cent of all the families. A seven-person health team with a strong background in health education was entrusted with the task of eradicating scabies in the community. A plan, conceived and carried out by the team, consisted of four phases: data gathering, information giving, treatment, and evaluation and summary.

The goal of eradicating scabies in this community was achieved. The strategy of the campaign emphasized the following points: the entire community was the target group and was involved maximally throughout the campaign; the professional responsibility was concentrated in the hands of the team. (Am. J. Public Health 66:564–567, 1976)

Introduction

Scabies is a disease that is neglected but of great importance in developing countries, a fact of which few health workers are aware except those who have done child health work in such countries.[1, 2, 3, 4] Classically, major outbreaks of scabies have been associated with wars and natural disasters, such as floods and earthquakes, which lead to depressed socioeconomic circumstances resulting in overcrowding, poor personal hygiene, and lack of adequate environmental sanitation.[5] For about two decades, between the end of World War II and the years of 1963–64, scabies was rather rare, especially in the developed world.[6] No adequate explanation has been offered for the increased number of outbreaks of scabies in various parts of the world since 1963–64.[3, 7]

This report deals with a project carried out in the winter of 1974–75 which was specifically designed to eradicate an outbreak of scabies in an Arabic village in western Galilee. The outbreak had continued to spread in the village over the previous five years, despite acute awareness of the problem by the medical personnel serving the village, and repeated attempts at clearing the sources of infection by conventional methods of seeking out and treating infected patients and family contacts.

The clinical aspect of this infectious skin disease will not be discussed but some points deserve emphasis to highlight the rationale followed. The infection is not limited to any age group but is more frequently found among children of school age; complications include impetigo, cellulitis and acute glomerulonephritis secondary to streptococcal infection;[5, 8] three to five days after the female sarcoptes mite lays her eggs in skin burrows, the new mites appear and can be transmitted to new hosts; transmission is by direct contact and by way of clothing and fomites; crowded conditions and faulty personal hygiene facilitate transmission; despite a proven hypersensitivity reaction and the possibility of developing partial resistance after infection,[6] recurrent infections are usual if the chain of transmission is not totally abolished by treating all family members and close contacts during a period not to exceed 1–2 weeks; the simultaneous disinfection of all clothing and fomites is an integral part of the treatment.

The Village

The village of D.A. in western Galilee is located on a rocky mountain slope. Most houses are built of stone or concrete. Streets are narrow and houses closely packed together. The population at the start of the project was 2,902, representing 446 families (average 6.5 persons per family). Over one-third of the families lived in one-room houses, and another one-third lived in two-room houses. For the village as a whole, there were 2.9 persons per room.

The population of the village was very young, 60.5 per

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cent being under 18 years of age. The population doubling time was about 17 years. The majority of able-bodied adult males worked at unskilled jobs in the cities and returned home daily. A smaller number worked in agriculture. The nuclear family unit was the operative norm in the village, but the affiliation to hamula (Arabic for clan) was expressed both in the geographic location of the families and in their sociopolitical identification as is the case in other Arabic villages in the Middle East.[9] The village lacked a municipal council and was administered by the district representative of the Interior Ministry. It had a clean running water supply but lacked a sewage system and an organized garbage collection system. Sewers ran in the streets and garbage dumps were a feature of each neighborhood. Electricity had not reached the village although several houses had private generators. The paved road to the village was in disrepair and public transportation did not enter the village.

The Medical Facilities

About two-thirds of the population was insured in the Israel Labor Federation Sick Fund medical insurance system, which maintained a medical clinic in the village, staffed by a general practitioner and a licensed practical nurse. The clinic was open daily except Saturdays for insured members. Special cases were referred by the general practitioner to specialists in the nearest city (20 miles) or to the nearest hospital (30 miles). A urologist, who lived in the village but held a position at the hospital, was available for general practice on certain weekends.

The Health Ministry maintained a Maternal and Child Health Clinic in the village which offered preventive health services primarily to pregnant mothers and their infants and children up to 2 years of age. Two nurses manned this clinic and a physician (pediatrician or obstetrician) visited it once every two weeks. There were no school health services except for immunizations.

The Outbreak

During the winter of 1969–70, several cases of scabies were reported among children in the D.A. village schools. The children were referred with their families to a physician (Sick Fund clinic or private) after receiving an explanation concerning the need for treatment of the entire family. For the following three years, scabies continued to be a problem in the village with increasing numbers reported especially from schools and during the winter months. The district health office stepped up attempts to break the cycle of transmission by disseminating information about the disease and its prevention through contacts with the population of the MCH clinic and through talks to the upper school classes.

During the winter of 1973–74, the number of reported cases increased. This time the health office entrusted the task to a group of five nurses, who visited the schools, accompanied by a physician and a sanitary inspector. All pupils were inspected for skin lesions. Talks were given to all classes above the fourth grade, and pamphlets in Arabic were distributed. A lecture by two physicians was given to a group of men at a special meeting. Home visits were made to all identified cases and the parents were invited to the MCH clinic for a free supply of medications (25 percent benzylbenzoate emulsion). Directions for applications of the emulsion and for disinfecting the house were given individually to the parents.

The results were unsatisfactory. Out of 202 families harboring one or more cases of scabies, only 160 showed up at the MCH clinic and used the medication. By October, 1974 the failure of these efforts was dramatized by another jump in the percentage of school children suffering with scabies—from the 24 per cent high of the previous winter to a new high of 31 per cent.

The Team

For a period of seven months starting in February 1974, a special team of eight nurses, one male nurse, and a sanitary inspector had met weekly or biweekly to receive special training in health education under the leadership of a health educator. The purpose of the training was to prepare the team to tackle a number of public health problems more effectively at the community level. Most of the team members were from the district villages and spoke Arabic. This team was entrusted with the task of eradicating the scabies outbreak in D.A. as its first project. Included in this team were one of the two nurses working at the D.A. Maternal and Child Health clinic and a sanitary inspector who had lived in D.A. since birth; the health educator headed the team.

The Project

A four-phase plan was drawn up by the team after reviewing the experience of previous years and consulting with a dermatologist, an entomologist, and a professional exterminator.

The team set as its primary goal the complete eradication of scabies from the village of D.A. by the end of February 1975. Secondary goals were set in detail in operative terms. The plan was activated on September 1, 1974.

Phase I: Data Collection, September 1, 1974–November 31, 1974. A demographic house-to-house survey of the entire village was carried out by the members of the team. The aggregate findings were given above in describing the village. A detailed listing of the village population by name of head of household was prepared, both alphabetically and by hamulas and neighborhoods. In addition, a survey of knowledge, attitudes, and practices (K.A.P.) of the village concerning scabies was prepared and carried out by team members, on a random sample of 55 men and 55 women, all adults. Eighty-three per cent of the sample were ignorant of the basic facts concerning the causation of the illness; 66 per cent thought it was a direct result of the open sewage flowing in the streets of the village. The majority felt the illness was a cause for shame and associated it with a derogatory Arabic name for skin infestations in camels and cattle. Nevertheless, over 80 per cent were ready to cooperate with the health team in a community-wide effort to eradicate the illness and 75 per cent felt modern medicine was the best way to treat the illness. Only 15 per cent disassociated themselves in advance of any such effort. Ten per cent thought that the illness was a God-sent punishment which could not be treated by medication.

Phase II: Information Campaign, December 1, 1974–January 26, 1975. In this phase an attempt was made to reach every household in the village with pertinent information concerning the illness and its treatment. A conscious effort was made to change the derogatory Arabic term used for scabies ("jarab") to a more acceptable one ("hakki", Arabic for itch). Basic epidemiological concepts related to transmission of the disease were clearly spelled out. The spread of the illness among all the village clans and among all social and educational levels was emphasized. An attempt was made to involve all formal and informal institutions in the village and to utilize all known community resources. The following activities exemplify this effort: (1) A group of known community leaders met with the entire team and with the district physician, and agreed to act as a committee to advise and assist the team in its work; (2) Members of the team called at the homes of village elders, heads of hamulas, and religious leaders to obtain their support; (3) Separate meetings with the entire team present were held with school teachers, members of the women's club, the schools' Parents' Council, the village education committee, the village water supply committee, and high school and college students. At each of these meetings, a talk on scabies was given, including the team's action plan followed by a call for volunteers and open discussion. Pamphlets in Arabic were distributed which reproduced the essential points of the talk; (4) The district physician personally visited the two physicians working in the village and the nurse working in the Sick Fund clinic to obtain their full cooperation. The physicians volunteered their services in treating complications of scabies and in diagnosing questionable cases free of charge; (5) Every class in the two village schools above the fourth grade received an hour-long talk on scabies followed by distribution of the informative pamphlets together with a simple question and answer sheet to be filled in by each pupil after having read the pamphlet to members of the family. Pupils were asked to indicate the number of people that participated in the answers and to have the parents sign the sheets before returning them to their teachers; (6) Three hundred forty-six adults participated in 36 informal evening coffee meetings in private homes. At each of these meetings a member of the team was present to discuss scabies and the upcoming eradication program.

Phase III: The Treatment Campaign, January 27, 1975–February 2, 1975. The public having been adequately informed, the entire village was divided among volunteers, mainly high school and college students. Each received a list of households with invitation forms indicating the date on which each family was to appear in its entirety at the MCH clinic. The division of the village was by hamulas and neighborhoods. Each volunteer was responsible for seeing to it that all the families assigned to him did appear on the specified date. At the MCH clinic, a thorough examination of the skin was done by specially trained nurses. The diagnosis of scabies was based entirely on clinical findings; complications and questionable cases were seen by a physician. Whenever a case of scabies was found, the head of the household was given an adequate supply of 25 per cent benzylbenzoate emulsion for the entire family and instructed in its use. He was asked to repeat the directions given and was assigned an appointment 10–14 days later for a follow-up examination of the entire family. His name was given to the volunteers in charge of his neighborhood. Within 24 hours the house was visited by an exterminator who sprayed all clothing, bedding, and other fomites with 0.5 per cent lindane in kerosene. This was preferred to sunning or boiling of clothing since it was decided not to leave treatment in the hands of the population. Four families, who strongly objected to spraying for fear of staining, carried out the boiling and sunning of clothing while a team member was present to oversee it. A flat fee was charged for the disinfection.

The entire village appeared on the given dates for the examinations with the exception of two families who were absent from the village at the time. In addition to the volunteers and the written invitations distributed to them, the mosque loud speaker (used to call for prayers) was used daily to announce to the village the day's schedule and the neighborhoods to be examined that day.

Twenty-two per cent of the village population were found to have the clinical symptoms of scabies. They represented 66 per cent of the households in the village.

On follow-up examinations, an 83 per cent cure rate was found. The remaining 17 per cent were given a second course of treatment similar to the first and examined again after ten days. After the third round of treatment only one boy was found to have scabies and he was referred with his family to a dermatologist who reported a cure two weeks later.

Immediately after the end of the first round of examinations and treatment, a survey of 34 randomly selected scabied households showed that 33 of them followed the instructions for treatment correctly.

Phase IV: Winding Up. At the end of the third round of follow-up checks and treatment, a meeting was held for all the village volunteers. A summary of the campaign was reported by the head of the team. Acknowledgement citations were awarded to the volunteers.

During the entire one-year period which followed the end of the campaign, only one case of scabies was reported in D.A. and was promptly treated.

Discussion

The community under discussion had several socio-environmental characteristics which undoubtedly aided in the persistent spread of scabies. Likewise, its closely-knit, well-organized population contributed to the success of the eradication effort.

From an epidemiological point of view the entire village had to be considered as a single treatment unit whose every member had to be reached if full eradication was to be the goal of the campaign.

The poor sanitary condition of the village could also have been a conditioning factor in scabies transmission by its effect on home surroundings and personal cleanliness. Jelliffe points out that in the underdeveloped part of the world scabies could be usefully considered a dermatological marker of deficient environmental hygiene.[1] This point was not

lost on the village population themselves, but in their less sophisticated way of thinking they saw this relationship as one of direct cause and effect. Sixty-six per cent of them indicated the open sewage as the cause of the skin plight.

The team had decided at the outset on three basic principles that were to be followed throughout the project: (1) To approach the village community in its entirety as the target group to be treated; (2) To enlist maximum active involvement of the community in each and every step of the project; (3) To concentrate responsibility for treatment including disinfection and follow-up in a single entity, the team itself. No reliance on the initiative of the individual or the family was to be allowed. Hence no referrals to other treatment sources were made (except for the final case of scabies) and no prescriptions were written.

The failure of past control efforts are not surprising when the inconveniences of the multiple referral and treatment sources, the loss of work days by the adult members of the family, and the difficult public transportation system are added to an uncertain level of motivation. Even in the serious attempt in 1973–74, an essential part of the treatment, namely the disinfection of the homes, was left in the hands of the family. The parents, as was found in the K.A.P. survey, had little idea about the cause of the illness, despite the distribution of pamphlets and the delivery of talks at school.

Two factors in the make-up of the team contributed greatly to the success of the campaign: all members were of village background, lived in villages quite similar to D.A., and had no communication barriers (emotional, cultural, or linguistic); the team was organically linked to the village by the inclusion of the village MCH nurse and an indigenous resident of the village.

Scabies is a very widespread and potentially serious disease in many parts of the world. Some public health experts have urged the establishment of special treatment centers in affected areas.[4] Nair called for a national policy for combatting scabies outbreaks in India.[2] The method described here with its heavy reliance on health education techniques, maximum involvement of the community, and concentration of the responsibility for medical care and follow-up in a single body could be considered in eradicating outbreaks of scabies in rural communities of the underdeveloped world where similar sociodemographic and environmental conditions exist.

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