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FACTORS RELATING TO THE PRESENCE AND USE OF
SANITARY FACILITIES IN RURAL SWAZILAND

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Abstract. Findings related to latrine construction and use in a sample of rural homesteads in Swaziland are summarized from a larger, unpublished sample survey. Anthropological research techniques were also used to gain information on attitudes and beliefs. Pit latrines were found in 21% of the sampled homesteads. The most significant variables in predicting the presence of a latrine were respondent's education and the highest level of education achieved by anyone in the residential unit. Older people and small children were least likely to use a latrine; people with less education were least likely to even have a latrine.

Factors Relating to the Presence and Use of Sanitary Facilities in Rural Swaziland

In support of the United Nation's International Drinking Water Supply and Sanitation Decade 1981-1990, the United States Agency for International Development has funded a number of water and sanitation projects in the poorer countries, including the Rural Water-Borne Disease Control project in Swaziland which supported the research effort reported here. The experience of earlier projects taught that mere provision of water or sanitation facilities was insufficient to insure their proper use, let alone to achieve improvements in health [1]. There emerged a realization that planned change in water availability or excreta disposal must be based on adequate information about the knowledge, attitudes and existing practices (KAP) of the population for whom the changes were planned [2].

Data reported here are summarized from a larger KAP survey [3,4] conducted in rural Swaziland in 1982, and relate only to the construction and use of sanitation facilities. A stratified cluster sample of 450 homesteads (the basic residential and social units in rural Swaziland) was derived, and a carefully pre-tested, pre-coded questionnaire was used to interview the men or women who were available as spokesmen for these homesteads at the time of interviewing. The author supervised a team of 35 Swazi interviewers; all interviews were conducted in siSwati, the indigenous language. Of the 450 respondents, 67.5% were female and 32.5% were male. The predominance of females was due to male absenteeism at the time of interviewing rather than to sampling design. The mean number of residents in a homestead was 10.3, and the mean age of respondents was 38. About 40% of the respondents had no formal education.

Swaziland is divided into four physiographic regions designated locally as highveld, middleveld, lowveld, and Lubombo Plateau. These regions exhibit differences in such characteristics as climate, rainfall, soil quality, disease prevalence, and size of human population; 27.3% of homesteads surveyed were situated in the highveld, 34.7% were in the middleveld, 29.1% were in the lowveld, and 8.9% were in the Lubombo Plateau region.

Our initial hypothesis, derived from similar health-related KAP surveys in Africa,

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Trop. geogr. Med., 37 (1985) 81-85

no. 1

was that factors such as educational level, age, and sex of respondent might have a determining effect on aspects of respondent's knowledge, attitudes, and practices related to sanitation. Other independent variables tested pertain to respondent's homestead, viz. size, region, being situated in an area designated as a Rural Development Area, receiving visits from a Rural Health Motivator (see below), the presence of a radio, and the highest level of education attained by any homestead member (a total of nine). Possible dependent variables analyzed related to owning a pit latrine, the use and sharing of latrine by adults and children, excretory behavior in the absence of latrines, personal hygiene, and reasons for lacking a latrine (a total of eight).

The sample represents nearly 1% of the estimated 50,000 homesteads in rural Swaziland. Given the cultural homogeneity of the area and the subject matter of the survey, this was felt to be an adequate sample size.

To supplement and to provide a basis for the interpretation of survey data, the author spent a year conducting informal, qualitative research. This included systematic, open-ended interviews with representative samples of traditional healers and Rural Health Motivators (who are similar to village health workers in certain other countries).

Latrine Construction and Characteristics

About 21% (95 respondents) of the sample had a finished latrine including one respondent who had more than one latrine. Of those homesteads with latrines, 83% had a single-hole pit latrine (5% of these with a vent-pipe); 11% had a double-hole pit latrine (2% of these with a vent-pipe); and 6% had other types of latrines.

In spite of a Ministry of Health policy (revised within a year following the survey) to promote and assist in the construction of only those latrines made with a concrete floor a scant 31% of latrines in the sample were of this sort. Another 46% were made with wooden planks; 9% with a combination of wood, concrete, and mud; 9% with wood and mud or soil; and the remaining 5% of miscellaneous materials.

Sixty-six percent of respondents had their latrines for less than seven years, indicating that a great deal of latrine construction has occurred in recent years. In fact, Swaziland's 1976 census reported about 14% of rural homesteads with a latrine, compared to 21% in 1982. Interestingly, those with latrines not built with a concrete slab reported having had their latrine for an average of 9.4 years, indicating among other things that latrines built from locally-available materials are quite durable.

Costs, Labor and Motivation in Latrine Construction

Respondents were asked who dug the pit for their latrines. Perhaps the striking finding was that about 36% relied on hired labor and 28% relied on children. The remainder were built by the homestead head or other male kinsmen. Homestead heads were slightly more active in building latrine superstructures, but the pattern was not very different from that of digging pits. Most superstructures were made of mud and sticks or poles while others consisted of cinderblocks, bricks, stone and mud, or wooden offcuts.

Thirty-nine respondents paid money to have a pit dug for their latrine, although only 25 could estimate the amount. A mean amount of E9.22 was paid (at the time of the survey, E1 was nearly equivalent to U.S. \$1). An average of E12.68 was paid for labor to build superstructures, and E16.41 for superstructure material, by those who spent money and remembered the amounts.

The important observation is that, adding up the average costs of labor and superstructure materials, as well as the E10 for a concrete slab and vent pipe for those opting for the government promoted type of latrine, a number of rural Swazis had to pay approximately E48 before they had a completed latrine. In this category would be homesteads in which able-bodied adult males tended to be absent, so that hired labor was required.

When asked who motivated people in the homestead to build a latrine, 44% of respondents said no one; 22% said a Rural Health Motivator; 15% said another family member; 7% said a health extension worker; 7% said a chief or chief's deputy; 3% said a nurse; and 2% said a teacher or friend. The plurality who replied "no one" presumably preferred to credit themselves, rather than anyone else in particular, with the decision to build a latrine. Some of these may have been motivated by mass-media (particularly radio) messages pertaining to sanitation and its relation to the prevention of cholera, which broke out in Swaziland for the first time in 1981. There has been a marked increase in the quality and quantity of sanitation-related radio broadcasting since 1982.

Patterns of Latrine Usage

A certain amount of empirical and anecdotal evidence suggested that some men would be unwilling to share a latrine with their daughter-in-law or with any woman at all. However, when asked if all family members shared the same latrine(s), 84.8% said yes, 9.5% said no, and 5.7% specified that children did not use the latrine. It would appear that even if people might prefer having two latrines, or a double-pit latrine with a partition separating male and female sides, they are usually not willing to spend the extra effort and money.

Sixty-two percent of respondents reported that only children over age five use a latrine for defecation. However, 82% admitted that children of any age always urinate in the open, despite a variety of bilharzia education messages that warn against the passing of schistosome eggs through urination.

Older people also tended to predominate among non-users of latrines, for reasons mentioned below.

It was recognized prior to interviewing that mere presence of a latrine does not insure usage and that self-reporting is a poor method of measuring latrine usage. However, systematic, direct observation of excretory behavior, as has been attempted elsewhere in Africa [5], seemed nonfeasible in rural Swaziland where people live in small, dispersed residential units. Nevertheless, the experience of extension workers as well as informal conversations with rural Swazis suggest that older school children and younger adults predominate among latrine users.

Constraints to Latrine Construction and Usage

When asked why their homestead lacked a latrine, 28% of respondents claimed they lacked material or money; 27% said they had never thought about it; 10% said they lacked the knowledge to build one; 10% said they wanted a latrine but had not gotten around to building one (or requesting or receiving assistance from the government); 8% mentioned problems in delivery of a concrete slab; 8% said there was no one to dig a pit; 5% said they planned to move or be relocated in the foreseeable future; and only 4% said outright that they did not want a latrine.

There seemed to be a need to probe deeper, since constraints to both construction

and use of latrines were probably more attitudinal than was derived or derivable from the survey. Informal interviews with extension workers, traditional healers, rural mothers, and other informants revealed constraints that relate to beliefs and attitudes.

The first relates to the inertia of tradition. Older people in particular saw no need – or even found it distasteful – to defecate “in a house”, especially since their ancestors did not follow this practice. Secondly, a fear of sorcery was expressed. Some rural Swazis believe that they can be victimized by spells involving their feces or urine, or by “poisons” placed by enemies or sorcerers on toilet seats or entrances to latrines. Thirdly, people may fear the possibility of a pit caving in, especially in areas with sandy soil where this is likeliest to occur. Moreover, many mothers fear their small children will fall into the pit through the floor or seat hole. Accordingly, they may advise children not to use latrines until they are older. Lastly, people were aware of the possibility of long delays in delivery of concrete slabs, with the attendant danger of a deep, exposed pit for animals or children to fall into.

Analysis and Conclusions

Combinations of 17 variables were statistically analyzed to establish the possible determining effects of respondents' age, sex, education level, region of country, and similar characteristics.

The strongest predictor, or influencing factor, turned out to be education, either the level achieved by the respondent or that of the most educated resident of the homestead. This partially supported our initial hypothesis, although the importance of the latter education variable was not anticipated.

The region, or physiographic zone, also made a significant difference, with latrines likelier to be found in homesteads situated in the highveld, followed by the middle-

Table 1. Owning a latrine, by respondent's education level, in number of years.

	<i>None</i>	<i>1-3 Years</i>	<i>4-7 Years</i>	<i>8 or more Years</i>
Have no latrine	86.2% (150)	74.1% (43)	67.9% (91)	52.5% (32)
Have latrine, or latrine being built	13.8% (24)	25.9% (15)	32.1% (43)	47.5% (29)

$\chi^2 = 30.77$, $p = <.001$ (total of 427 cases)

Table 2. Owning a latrine, by highest level of education in the homestead, in number of years.

	<i>None</i>	<i>1-3 Years</i>	<i>4-7 Years</i>	<i>8 or more Years</i>
Have no latrine	93.9% (31)	94.4% (17)	85.0% (96)	64.9% (170)
Have latrine, or latrine being built	6.1% (2)	5.6% (1)	15.0% (17)	35.1% (92)

$\chi^2 = 29.1$, $p = <.001$ (total of 426 cases)

veld, lowveld and Lubombo Plateau respectively ($x^2 = 29$, $p = .001$). Latrines were also somewhat likelier to be found in areas with Rural Health Motivators ($x^2 = 6.3$, $p = .01$), part of whose job is to educate people about the health benefits of having a latrine.

Regarding the independent effect of formal education, it should be noted that age and level of formal education are inversely related: those with more education tended to be younger. This reflects the greatly expanded opportunities for education found in Swaziland in recent years. Furthermore, there were no significant differences between the educational levels of male and female respondents, even though males may have had greater opportunities for schooling than females in the past. Males in the sample tended to be older than females and this had a counterbalancing effect since older respondents tended to have had fewer years of education.

The importance of formal education as prime determiner of knowledge, attitudes and practices has been noted elsewhere in Africa [6,7]. The degree of formal education achieved by another member of the homestead (other than the respondent) also had a determining effect on practices in the present survey. This suggests a "spread effect" of health-related education within the residential group.

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