Epidemiological Survey About Socio-Economic Characteristic Of Mpindweni Location, South Africa
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Citation

Abstract
The study was conducted at Mpindweni community at the outskirts of Umtata for purpose of identifying disease causation, pattern and prevention as well as to create insight about research. In the study about 86 households were interviewed. The data was collected by a group of twelve students using a questionnaire designed by the department of community medicine at the University of Transkei. The data was analysed through the use of Microsoft office. The results indicated that the community has shortage water and there is no constant and reliable safe water supply. The study also indicates that there is an increased rate of unemployment and the majority of those employed have income less than R500 (76 USD) per month. Very high consumption of alcohol and tobacco use is cause of consent.

INTRODUCTION
The Faculty of Health Sciences of the University of Transkei has committed itself on the vision of becoming the leading group in Africa, in Problem Based Learning (PBL), Community Based Education and community partnership in order to improve the quality of life of all people it serves. This vision has led to the Faculty of Health Sciences committing itself to excellence and local responsiveness though the integration of community service into its learning programmes that involves teaching and research with special emphasis on sustainable rural development and in partnership with communities and service providers.

It is against this background that the department of community medicine has seen it fit to engage students on activities that will help them to acquire skills that will help them engage and work in partnership with communities around them. The communities involved are the Primary Health clinic staff and the community leaders served by the health centre. Students once a work have to engage themselves in clinical practices with the help of their tutors in the mornings, and in the afternoon they have to work with the community leaders in evaluating and assessing the health profile of the community.

SIGNIFICANCE OF THE STUDY
The present study was conducted in the King Sabatha Dalindyebo municipality area in the former Transkei of the Eastern Cape Province, South Africa. This area characterised by many problems such as poverty and illiteracy which may bring about many social problems. Most part of this is said to be rural and there are very few hospitals and clinics and the available health care facilities are poorly resourced. According to this study health care facilities in this region are poor in terms of human resources, availability of drugs, medical equipments and other primary health care facilities. This study showed that only 56% of the approved posts on nursing staff were filled. It also showed that only 25% of the clinics had drugs such as measles vaccines, benzanthine penicillin, cotrimoxazole, iron tablets and latex gloves. Less than 33% of the health care facilities did not have ciprofloxacin which is a drug mostly directed for sexually transmitted illness. Most of the clinics had no refrigerators, 44% had two-way radiophones and only 38% had access to emergency communication. In an emergency situation only 31% use an ambulance as means of transport. The above study clearly indicates that many problems faced by our communities concerning health and health facilities remain unsolved. It is therefore important from time to time to evaluate progress in health status and health facilities in our communities.

Successful community approaches have been the results of good collaboration between general services and the community, good education about common disease and how they can be prevented, and how to take care of those patients. An emphasis on the good training of community
By the community health services should be provided. Other study performed by Mutume, in 2004 about availability of water in rural South Africa also show similar results and he discovered that nearly ten million had access to clean-safe water than a decade ago, he also points out that South African government has introduced a policy of providing the first 6000 litres of water per month-per family. Lehmann, investigated the roles and functions of clinical supervisors in three district in the Eastern Cape even before and found that clinical supervision is hampered by unresolved governance issues, which leads to continued fragmentation of services, unclear roads and lines of accountability, excessive meeting loads and unstable working conditions, his study also concluded that while clinic supervisors have a great range of skill at their disposal, training and support particularly in the areas of organisational and human resource management are an ongoing and urgent requirement.

Before the current epidemiological survey we performed other epidemiological studies on prevalence of epilepsy, knowledge about neurocysticercosis, and socio-economical conditions from Sidwadweni, Ngqwala, Nkalukeni, and Ngageliswe locations detailed information about it is available online. According to our previous results poverty, poor sanitation, lack of sustainable primary health care facilities among other socio-economic problems are common all over the former Transkei, however for those locations nearby to Umtata (Capital of the former Transkei) these epidemiological feature are not well-known therefore to investigate it we designed the present study.

One of our goals in the current exercise is to create among students the awareness about environmental, social and economic status of the community and how these influence the health and occurrence of diseases as well as impact of disease processes both in the individual and the community at large. This should provide enough information about the methods of intervention available at individual as well as at community level, which will minimise the occurrence of disease and suffering and promote health.

**OBJECTIVES**

- To evaluate the status of public health for Mpindweni location and their life style.
- To find the most prevalent risk factors for the diseases.

**MATERIAL AND METHOD**

**STUDY DESIGN**

This was a cross-sectional local study among peoples living in 86 households from Mdindweni location, South Africa. It is a first time that a questionnaire is applied on this location.

**SAMPLING**

The study population comprised all peoples living on the above-mentioned households. It was determined that 100 households were to be selected, and it was assumed that each house would have approximately 5 peoples. A household and peoples participation rate of 90% was expected it was based on the experience of a similar recent door-to-door epidemiological survey. In order to achieve the desired sample size, 127 households were selected in the first stage of sampling. Sample size and confidence interval were calculated by sample size calculator available online from http://www.macorr.com.

**STUDY INSTRUMENTS**

The department of community medicine from University of Transkei designed the questionnaire. The questionnaire included only close-ended questions, without skip pattern or multiple response questions. Long list of response options were collapsed in some cases, where it was felt that the level of detail being capture could be reduced without material loss to the finding from the survey. The questionnaire was composed of biographical questions, other questions relating to life style, environment, sanitation and hygiene, and health services among other aspects; the shortening of the list of response options also contributed to making the question instrument easier to complete, third year medical students applied this questionnaire.

**CONSENT**

Those students gained entry in the community through seeking permission from the chief or community leader of the community who granted the permission without hesitations. Active informed consent to conduct the study was obtained from the Department of community medicine, Stanford clinic, and peoples from the community to be interviewed. In addition, assent was also obtained from peoples to interview on the day of the study. All personal details from interviewed peoples were omitted to ensure their anonymity. To increase the confidentiality of the selected peoples, chief community leaders, or any other person apart from a pair of interviewers were requested to leave the place of interview during data collection.
DATA COLLECTION

Data were collected through administered questionnaire. The data collection period extended from August 15 to September 25, 2004.

PREPERATION FOR DATA COLLECTION

The selected households were invited to participate in the study by personal contact through the leader of the community. All students were divided into 6 subgroups according with their fluency in English and isi-Xhosa languages. A range of third year medical students were invited to undergo specialised training in order to be able to identify epileptic patients (Part II) and the socio-economic features of the community. This training enabled them to become competent as data collector. Following the training, teams with a minimum of 2 members were established for each household. The team was made up of 1 interviewer fully fluent in isiXhosa and 1 student to read questions and record the obtained information. One of the members was appointed as the team leader and was required to negotiate an appointment with the leader of the community and serve as co-ordinator for household visits. Standardised methods for conducting the study (preparing packages of questionnaire, transportation of the subgroups, procedures for supervising the answering of the questionnaire in the household, collecting the questionnaire and answer sheet and sending it back to Umtata) were developed. Students were advised about their active participation and quality of data collection as part of the continue assessment.

DATA ANALYSIS

The data were recoded from question responses into meaningful prevalence variables. Prevalence rates and 95% confidence interval were computed. Differences between prevalence estimates were considered significant if the 95% confidence intervals did not overlap, that is, differences were considered significant at the p<0.05 levels

LIMITATIONS

While cluster sampling is substantially more cost-effective than simple random sampling and reduces the sampling frame data requirements, the main disadvantage is that estimates are less precise than a simple random sample of the same size in spite of accurate calculated sample size by any method.

The transport was not always available, consequentially valuable time for the project was lost. The inexperience of conducting interviews by medical students may have led to the collection of erroneous data.

Of the 14 households that did not participated, 10 households either refused to participate, could not be contacted, or did not respond to their leader's notice; the data of 2 households could not be used due to lack of adherence to the data collection protocol, and occupants from 2 households that agreed to participate were not available at the time the survey was done

RESULTS

Total population was 2569 peoples and 64% were females. The results of the instrument showed a sensitivity of 95%, specificity of 94%. Socio-economic status in general was characterized by unemployment or very low salaries, limited access to primary health care and health education, limited access to toilet facilities, no proper refusal disposal, lack of safe and clean water, lack of health education, non-limited access of pigs to human feces while free-range pig farming is commonly practiced. Pork meat consumption is high at least once a month. At the time of this survey most of responders were owner of their house (see graphic 1). Most of the respondents were in the age group between 31-45 years (43%), followed by those above 45years (33%) and those with age 16-30 years were in minority (24%), see graphic 2. An important number of families in the sample have a size greater than five family members (51%), followed by those with less persons (15%), those with three and five both make up 12% and lastly those with one and two persons make up 4% and 6% respectively (see graphic 3).

The majority of the household had stable families with 73% being married, 22% were single and only 2% and 3% were widowed and divorced respectively (graphic 4). Pregnancy was not seen commonly in this location at the survey-day (see graphic 5). Graphic 6 indicate that majority of the peoples were in the second level of education (47%), those in third level make up 24%, illiterate and first level make up 18% and 11% respectively. The majority of the peoples were unemployed making up 58% (graphic 7). In most of the households monthly income money was below R500 (40%), followed by those with income R500-R1000 (27%). Only 15% and 18% had family income R1100-R1500 and greater than R1500 respectively (graphic 8). Figure 9 indicate that 38% of the residences were built up on cement structure, 27% were rondavels and only 5% were tin structures. The majority of the households had a number of bedrooms greater than three (35%), followed by other with three
bedrooms (28%), and another with one and two bedrooms were 14% and 23% respectively (graphic 10). Figure 11 indicate that 31% of the households had two people sleeping per room, 3 people sleeping per room was also find in 31% of this series. Twenty two percent have greater than three persons sleeping per room and 15.1% had one person sleeping per room. Figure12 show that the majority of the households use paraffin as a source of fuel (82%). This is followed by wood 44%, electricity 10.4% and gas 10.4%. The wood was used by 30%; and the households used electricity 7% and gas 3% for heating respectively (Figure 13). Ninety one percent of the peoples used the kitchen as the place of cooking and 39% have been cooking outside (Table and figure 14). Table 1 show that the majority of the households did not have tanks to store water 72%.

**Figure 1**
Figure 1: Shows a graphic representation of the sample by relations to the household

**Figure 2**
Figure 2: Graphic representations of the respondents by age.

**Figure 3**
Figure 3: Graphical representation of the sample by family size

**Figure 4**
Figure 4: Graphic representation of the sample’s family status

**Figure 5**
Figure 5: Show a graphic representation of pregnancy in the sample.
**Figure 6**
Figure 6: Show a graphic representation of the sample by education

**Figure 7**
Figure 7: Graphic representation of the sample by employment status

**Figure 8**
Figure 8: Graphical representation of the family income.

**Figure 9**
Figure 9: Graphic representation of the type of residence

**Figure 10**
Figure 10: Graphical representation of the number of bedrooms.

**Figure 11**
Figure 11: Graphic representations of persons sleeping per room
Figure 12
Figure 12: Graphic representation of fuel for cooking.

Figure 13
Figure 13: Graphic representation of fuel for heating.

Figure 14
Figure 14: Graphic representations for the location for cooking

Figure 15
Figure 15: Graphic representation of water supply.

The majority of the households did not have constant supply of water (73%) despite of their close proximity to Umtata (figure 15). In the majority of households they occupants do not boil water before use (60%), see graphic 16. Availability of toilets was low (23%) as can be seen in graphic 17 and most of the peoples did not wash their hands after toilet use (80%) see figure 18. Figure 19 indicate that the majority of the households had flies in the kitchen and the toilets (76%). Figure 20 show that dogs were the most animal kept at the households (41%) followed by chicken which make up 30%, cats (14%), goats (13%), sheep (10%) and other animals 5% in that order. It is important to note that 35% of the households did not have any animals. Figure 21 indicate that in the majority of the households had rodents (79%) and 41% of the households had cockroaches (figure 22). In figure 23 can be seen that the majority of the households had at least one person smoking (58%) and in 42% of houses we did not find smokers. No less than one person per household was an alcohol use (51%) and in 49% of the studied households we did not identified drinkers (see graphic 24). Most of the people (96.4%) in the sample did not smoke dagga (cannabis/marijuana) and only 3.6% consumed marijuana at least once a week (graphic 25).

Table 1: Water storage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank</td>
<td>24</td>
<td>27.9</td>
</tr>
<tr>
<td>No tank</td>
<td>62</td>
<td>72.1</td>
</tr>
</tbody>
</table>
**Figure 17**
Figure 16: Graphic representation of boiling water before use

![Boiling of water before use](image1)

**Figure 18**
Figure 17: Graphic representation of the availability of toilets

![Availability of toilets](image2)

**Figure 19**
Figure 18: Graphic representation of washing of hands after toilet use.

![Hand washing after toilet use](image3)

**Figure 20**
Figure 19: Graphic representation of the presence of flies in the kitchen and toilet.

![Presence of flies in the kitchen and toilet](image4)

**Figure 21**
Figure 20: Graphic representation of the animals kept at the household

![Animals kept at the house](image5)

**Figure 22**
Figure 21: Graphic representation of the presence of rodents.

![Presence of rodents](image6)
Figure 23
Figure 22: graphic representation of the presence of cockroaches

Figure 24
Figure 23: graphical representation of smoking in the community

Figure 25
Figure 24: Graphical representation of alcohol use.

Figure 26
Figure 25: Show a graphic representation of use of marijuana (Cannabis/Dagga)

Figure 27
Figure 26: Show lack of water from the public tap

Figure 28
Figure 27: Source of water for many peoples.
The present study indicates that the rate of unemployment was very high as is commonly seen in this region and other African countries, these findings are similar to other observed in the Eastern Cape Province. According to a report published by the Human Science Research Council in 2004, the Eastern Cape Province has a higher rate of unemployment countrywide, in that report the Eastern Cape Province also showed that this province generated 3900 jobs for 6,4 millions of peoples from 1995 to 2002. During this period of time there were about one million people who entered labour market, which is a very high number and this led to increased unemployment by 88%. The labour force grew by 61% and employment rate by 42%. The average monthly income is an indicator of the socioeconomic status, and as was presented, most people were earning less than R500 from small jobs including self-employment and social grant for elderly peoples and children. Some people earned between R500 and R1000 per month but most of this money was from government grant to elderly and disabled peoples, which is R740 per person. When looking at the family size of which the more prevalent number of family members is more than five per family, its indicates that this income is insufficient to sustain these people. This money may amount up to R7 per person per day only catering for basic meals and excluding other necessities. Other finding concerning to houses, overcrowding accommodation do not differ from others reported previously, therefore that information did not deserve any special attention for this study.

**WATER SUPPLY**

The quality of water supply is the main specific measure of environmental control in the community. Adequate and safe water supply is essential for good quality of life. There are many infectious diseases transmitted through water, which makes its good quality essential for good life. According the World Health Organisation it is recommended that each person should get a minimum of 50 litters of water a day for good quality of life. From the results of the present study is observed that Mpindweni community did not have a reliable source of water being it a big problem for the whole African continent as well. Their main source of water is from the taps that are not always in good working conditions and available all the time (see figure 26). These then result in the community resorting to other sources of water that is not healthy. These sources are wells and dams (see figure 27). Most of the people do not boil the water and that predisposes to infectious diseases that spread by water and cause diarrhoeal diseases especially in children.

The taps are unreliable, they dry out for some weeks and when water returns everyone is waiting already at the taps. As there was no water for sometime each person brings about ten buckets of sixty litres and they spend the rest of the day at the queue, the supply of water might be cut off while people are still in a queue. Sometimes to get water from the taps is even more difficult because of vandalism on its.

In 1996 (that is two years after elections) 12 million people did not have access to safe and clean water. Diarrhoeal diseases caused about twenty percent of deaths in 1 to 5 years group of age and caused an estimated forty –three thousand deaths and three million cases of illnesses,
according to this study rural ground water schemes were seen to frequently fade however it was demonstrated that drinking water standards by the implementation of a carefully planned community accepted drinking quality management procedure successful implementation of such procedures involves skills, draining, capacity building technical support and mentoring. 

SANITATION

The environment plays an important role in the health status of the community. There is no factor that is more useful than the science of sewage disposal. It is very much important to separate the excreta from water and from food supplies, thereby preventing the faecal-oral spread of diseases like cysticercosis/taeniosis. The inefficient disposal of sewage sludge or the faecal pollution of soil results in a high incidence of parasitic infections as was before mentioned.

The majority of residences use the long drop toilet system and the minority who do not have toilets either share with neighbours or use the “donga” for toilets, in many circumstances we could confirm that toilets were in very bad conditions and we could see that those toilets have not been in use for a long period of time (see figure 28). Use of “donga” is a precarious option because some residences fetch water from the dongas and spring holes sometimes contaminated with faecal material (see figure 29), so in spring and summer when all the dirt is washed down to the water sources when it rains. In this manner, communicable diseases are spread and may initiate disease epidemics. Toilets are changed generally when they are full i.e. on average of three years. There are vectors that may spread diseases under unhygienic conditions like flies and mosquitoes mainly around those household without toilets (23%). From this percentage about 20% of peoples did not practice hand washing hygiene after defecation therefore their chance to get infections disease increase tremendously. This is due to the fact that some diseases are spread in this manner, as some individuals may be food handlers in the household then other member of their family can be infected secondarily.

SUBSTANCE ABUSE

TOBACCO USE

The use of tobacco products usually leads to a lifelong addition to nicotine on its consumers. There were 100 million deaths from tobacco in the 20th century, but if current smoking patterns continue, the number will increase ten-fold this century. Tobacco use is a remarkable example of the effects of behaviour on health. It is a major health threat with negative consequences that have been recognised causing numerous chronic conditions including heart disease, lung diseases, stroke and cancers. Tobacco consumption is increased in developing countries by 3.4% a year. Unhealthy changes in dietary patterns reduced physical activity and increased illicit drug use may seem minor by comparison to the destruction caused by tobacco.

“Tobacco will cause more deaths than any other single reason and health systems will not be able to afford the long and expensive care in its wake”

In the Mpindweni community the rate of smoking people was reflected by 58%. This could be attributed to the shift in population from rural to semi-urban, as the community is more close to town. Another contributing factor is that advertising industries promote unhealthy products with the slogans that encourage people to smoke. These markets make tobacco use as attractive as possible to the buyers.

Tobacco use in South Africa is commonly assumed to involve only cigarette smoking, and we could not identified among the smoking group consumption of smokeless tobacco products probable because deficiency in our questionnaire.

ALCOHOL USE

It is well known that alcohol consumption is increasing gradually all over the world and ethanol is a central nervous system depressant that exerts sedative and hypnotic effects. Alcoholism is a dependence disorder that may be caused by various social, economic, biological and psychological problems.Attributed to the biological factors may be genetic factors that are highlighted in findings from twin studies and adoption studies. Psychological stress due to community problems, family instability, poverty and work overload may lead to alcohol abuse. Chronic exposure to alcohol results in persistent systemic changes such that when an individual stops alcohol intake then he/she develops withdrawal symptoms. There has been suggestion that withdrawal symptoms are a contributing factor to relapse. In our study, 52% of peoples were taken alcohol on daily basis being it a cause a major consent because alcohol use is ranked fifth among the leading cause of death and consumption. It has increased over time with the greatest ones occurring in developing countries. We strong believe that urgent measures should be taken to stop or at least decrease the amount of peoples consuming alcohol regularly in this community also because alcohol continue being responsible.
for 3.2% of all death per annum (1.8 million) worldwide; besides the direct effects of intoxication and addiction resulting in alcohol use disorders, alcohol was estimate to have caused worldwide 20-30% of oesophageal cancer, liver disease, epilepsy, motor vehicle accidents and homicide.

Alcohol is the drug most commonly used by South African of all ages and more than 1 in 4 South Africans (28%) aged 15 years and over currently acknowledge consuming alcohol, and locally 4 in 5 adults had drank at least one drink of alcohol in their lifetime being it another major consent.

CANNABIS (DAGGA)

Cannabis is the most widely used illegal drug globally with an estimated 144 million annual users and is described as the main problem drug in Africa. We identified a 3.4% of consumers in this area but we did not find evidence of its association with tobacco or Mandrax (tablets of methaqualone and antihistamine) as can be see in other South Africa Provinces.

Inhalants, or volatile substances such as: glue, paint thinners, benzene and petrol commonly used among young people in South Africa were not included in this questionnaire because previous surveys did not detect this problem never before, however “white pipe” (Mandras plus dagga) should be considered in forthcoming studies for these locations near to Umtata which is gradually becoming a big city. In spite of, cocaine, heroin and “Club drugs” like ecstasy, amphetamines (“speed”) and lysergic acid (“LSD”), have been increasing in availability and use South Africa, as far we know these illegal drug are not available in our region at the present moment but they will be considered as issue to be assessed in further epidemiological investigations.

CONCLUSIONS

Prevalent risk factors for the disease such as: poverty, overcrowding, stray animals, absence of toilets and poor preventive measures as some people do not boil water, tobacco smoking, and alcohol consumption were commonly seen on this community.

Obtaining pure water seems to be a real challenge for this population, especially during dry seasons, because some of the community taps are not in working condition. Consequentially queues are so long that it takes hours to actually get to the tap and so inconveniently, the water runs out after the whole effort.

The present study revealed that the majority of the households have more than five family members, and yet about 58% of the population is unemployed.

High consumption of tobacco and alcohol is a cause of consent.

References

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