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Sanitation practices and preferences in Umgungundlovu, a district of South Africa

Abstract

In the developing countries, about 2.5 billion people do not have access to improved sanitary facilities and services. In the whole world, 1 billion people do not have access to toilet facilities and instead they practice open defecation. According to UN Water, about 7 out of 10 ten people without improved sanitation are based in the rural areas. Some 2.4 billion people will remain without access to improved sanitary facilities and services in 2015. South Africa is one of these developing countries and there is need for more research to improve water and toilet facilities. A study on sanitation practices and preferences in uMgungundlovu District Municipality of South Africa was carried out and it aimed at providing strategies for improving basic sanitary infrastructure needs for the population in this area. A questionnaire made up of 30 questions was used as the research instrument. A total of 120 questionnaires were hand delivered to 120 households in the targeted area of study. What emerged from the study is that the available sanitary facilities in uMgungundlovu are not adequate and some cultural and social beliefs that affect sanitary and hygienic practices were identified. Ways to improve the available sanitary facility in uMgungundlovu were suggested and some correlations between demographic data and cultural or social factors were determined.

Keywords: sanitation, toilet and water facilities, cultural and social factors.
JEL Classification: Q53.

Introduction

According to the World Health Organization (2015), "sanitation is the provision of water and toilet facilities that are safe for the people". Sanitation promotes the proper disposal of wastes from either human beings or animals. For people to achieve acceptable sanitation levels there is need for people to avoid open space defecation and proper use of toilet. On the other hand, the Wikipedia (2015b) defines sanitation "as the hygienic processes that are promoted through prevention of the contact of human beings and their wastes as well as the proper disposal of these wastes". The hazards of wastes can either be in physical form, biological, microbiological or as some chemical agents of diseases. Sanitation is very important to this world and to people's lives to be specific. The various harmful or deadly bacteria that infect people and start diseases thrive in places with very poor sanitary facilities. Improved sanitation processes result in increased lifespan and improved living standards. Proper sanitation practises are very important to the survival, development and growth of the children. Improved sanitation facilities result in lower mortality and morbidity rates in the population, a cleaner environment, a better learning and retention among school children, improved nutrition for the children, safer food and water supplies. With better sanitary facilities there is more dignity and privacy for everybody. Most women and girls do not feel safe and comfortable to bath in open spaces such as rivers. There is a need to increase awareness of the importance of sanitation and hygienic processes so that we can develop a more permanent strategy and solution to the world's sanitation problem.

The purpose of the study underlying this article was to provide strategies for improving basic infrastructure needs for the population in uMgungundlovu District Municipality. Therefore, the specific objectives of study at hand are:

- To determine the sanitary facilities and services that are available to the households in the targeted area and also assess the adequacy of these facilities.
- To examine if the people in the targeted area are satisfied with the available sanitation facilities and services.
- To determine and assess the impact of cultural and social factors affecting sanitary and hygienic practices in the targeted area.
- To determine some correlations between biographical data and the:
- available sanitary facilities;
- cultural and social factors.

The following section focuses on the theoretical aspects of the study. The review discusses theoretical issues on sanitary facilities and services, cultural and social factors affecting sanitary and hygienic practices and ways to improve these.

1. Literature review

1.1. Sanitation. According to Van Minh and Nguyen-Vet (2011) sanitation is mainly about the provision of

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facilities and services for the hygienic disposal of human waste. In this case the human waste is in the form of the urine and faeces. Van Minh and Nguyen-Vet went further to define an improved sanitation facility as one that can safely and hygienically separate human waste from people themselves. On the international development community, sanitation is rising up the agenda. At United General Assembly in 2010, basic sanitation was recognized as a human right (United Nations General Assembly, 2010). The universal access to proper sanitation facilities and services is being proposed as the global target for 2030 (The High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, 2013; Water Aid, 2013). According to Mcgranahan (2015), there are serious challenges that are associated with sanitation facilities and services in the poor urban communities. These challenges include the challenge of affordability against acceptability by the people, housing tenure related challenges and the collective action challenge.

According to WHO/UNICEF (2012), sanitation is very important and it includes the following activities:

- Proper handling and safe collection, storage, treatment and disposal of human waste. The disposal of human waste includes recycling or re-use of the faeces and urine.
- Management and recycling or re-use of household wastewater including its management. The wastewater is known as grey water or sludge.
- Management of rain or drainage water its treatment and disposal. This includes sewage recycling.
- Management, recycling and disposal of waste products from the industrial sites.
- Management of dangerous wastes such as radioactive substances, hospital waste and other hazardous chemicals.

KwaZulu-Natal is one of South Africa's nine provinces and is located on the south eastern coast of the country. uMgungundlovu is one of the 11 district municipalities of the KwaZulu-Natal province.

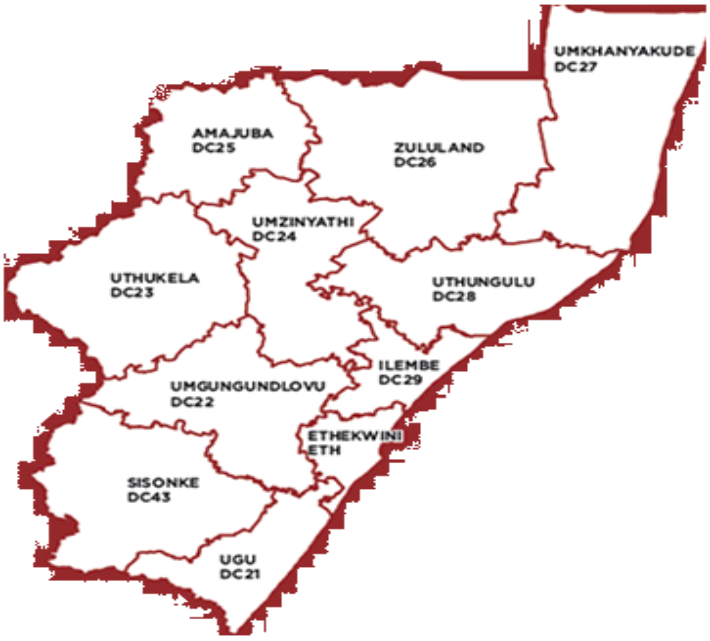

Fig. 1. uMgungundlovu map, adapted from Google Map 2015a

There are two historical versions of the origin of the word uMgungundlovu according to PM (2015). Of these two, the correct version is not clear but both versions seem to make sense.

Version 1: The first version is that the Zulu King, Dingane who died in 1843 was known by his people as the "The Elephant". It was because of that his residence was also called uMgungundlovu literally meaning "The Abode of the Elephant".

Version 2: When the Location System was established in Natal by the Colonial Government in the 1840s, each location was placed under the control of a Zulu chief, who was directly responsible to Lieutenant-Governor Martin West in the capital, Pietermaritzburg. By a natural transition, the capital became known to the Zulu's as uMgungundlovu, the place where the Big Chief (Martin West) resided. This, then, is the significance of the elephant symbol of Pietermaritzburg, which features on the city's crest today.

The majority of the 1 017 763 people in uMgungundlovu speak Zulu according to South Africa 2011 Census (Statistics SA, 2011). uMgungundlovuis made up of 7 local municipalities as shown in Table 1.

Table 1. Composition of uMgungundlovu district municipality

Local municipality	Population	% age
Msunduzi	618 536	60.77%
uMshwathi	10 6374	10.45%
uMngeni	92 710	9.11%
Richmond	65 793	6.46%
Mkhambathini	63 142	6.20%
Mpofana	38 103	3.74%
Impendle	33 105	3.25%
Total	1 017 763	99.98

Mpofana is one of the 7 local municipalities in uMgungundlovu. The word Mpofana is the Zulu name for the Mooi River and it means "place of the eland". Figure 2 shows the location of Mpofana Municipality in uMgungundlovu district.

Fig. 2. Mpofana map, adapted from Google Map 2015b

1.2. Sources of water. Water is one of the most important liquids on this world. There are so many sources of the precious liquid and these include rain, rivers, lakes or dams, wells or springs. We can classify sources of water into two main categories. These two categories are surface water and underground water. Surface water is the water that is present on the earth's surface in the form of rivers and lakes (Ambulkar, 2015). On the other hand we have underground water which is the water under the ground. This underground water is the rainwater that seeps through the soil onto the hard rocks and collects as underground water. To obtain this water we dig wells or sink boreholes. The challenge that we have is to take this water to the people in form that is safe to drink or use. Mistakes in the proper sanitation of these water sources can cause serious health problems to the people. More on water source and drinking water can be found in Fuh Lin et al. (2015).

Fig. 3. Outside water tape at unidentified household in Mpofana

1.3. Toilet facilities. Disposal of human waste from households requires proper sanitary processes to be followed. The lack of proper toilet facilities can result in so many serious problems that are associated with poor sanitation such exposed faecal material. This exposed faecal material usually leads to many preventable diseases. The exposed matter also creates a breeding ground for diseases causing organisms and parasites. More on toilets can be seen in Gregory and James (2009).

Fig. 4. Improved pit latrine built at an unidentified household in Mpofana

1.4. Rubbish collection. The management of waste has got some challenges in South Africa at the moment. The waste management service delivery in South Africa is a local municipality function according to the South African Constitution (Act No. 108 of 1996).

Fig. 5. Rubbish waiting for collection in Mpofana

The Mpofana Local Municipality authorities are trying their best to improve water supply, toilet facilities and rubbish collection services for the people.

1.5. Consequences of poor sanitation. According to McGranahan and Songsore (1994) and Songsore (2004), the urban environmental transition model "postulates that the nature of environmental problems and, therefore, sanitation challenges, in cities changes with levels of economic development". The model suggests that in those cities that are found in poor countries, sanitation health related challenges are found at the door steps of homes, neighborhoods and workplaces. These challenges include inadequate water supply and poor sanitation facilities and services, poor and overcrowded housing, poorly ventilated kitchens, disease causing insects, contaminated food, uncollected rubbish piles and poor or blocked drainage pipe system. The following is a long list of problems that is associated with poor sanitation:

- health problems;
- water and soil contamination;
- social safety;
- air pollution;
- environmental damage;
- loss of tourists and investors;
- negative effect on education;
- loss of revenue;
- source of violence and insecurity;
- source of illegal business and other communities;
- stigmatization of one community.

If sanitation in a community is properly handled then there are benefits that come with it. These benefits include the following:

- prevention of diseases;
- improved school attendance of children;
- costs are saved and days that could have been spend ill are saved.

Sanitation practices and preferences are supposed to be areas of concern for the whole world so that we can have a better world. Happiness in this world is never complete without the proper sanitary facilities. It is painful to see that some people delay or postpone their visit to the toilet simply because of the very bad hygiene the toilet facility has. When these people finally visit the toilet they try to avoid contact by hanging above the toilet chamber. A research done by Dutch Magazine (2009) has shown that, not sitting down in a toilet can cause cystitis. Also postponing a toilet visit might cause waste products produced by the body to go into the blood stream. The study provided strategies for improving basic infrastructure needs for the population in uMgungundlovu District Municipality. From an environmental health perspective, the research findings and recommendations will provide important steps in preventing disease transmission and environment degradation. The municipal authorities can now rank existing sanitations options for district or local municipalities and then target their economic and technical efforts to promote only those technologies that are most likely to succeed in each and every target area.

2. Research methodology

2.1. Sample and data collection. The survey was conducted in Mpofana, one of the 11 district municipalities of the KwaZulu-Natal province. The municipality was randomly selected. Mpofana Local Municipality has an established numbering system for all households in the urban and semi-urban areas so as to facilitate record keeping for their service delivery. In rural areas the municipality use numbering system together with names of sub-wards to facilitate service delivery. The study targeted only households and social areas which are benefiting from the municipality service delivery. Mpofana Local Municipality has four wards and 30 houses were randomly selected for the study in each ward thus giving a total of 120 households. Only those respondents with a minimum of 18 years were used as participants.

2.2. Construction of the research instrument. The study used a questionnaire as the research instrument. The questionnaire was made up of 30 questions. The research instrument had 4 main sections from A to D. Section A was mainly on the demographics, Section B was on the facilities and services available to the households, Section C was on cultural and social factors affecting sanitary and hygienic practices while Section D was on proposals to improve sanitation facilities.

2.3. Pretesting and validation of research instrument. The questionnaire was tested on 10 households in Mbofana Local Municipality but households were not from the 120 participants se-

lected for the main study. The necessary changes were made.

2.4. Reliability of research instrument. The Chronbach's alpha coefficient was found to be 0.842 which indicated that the research instrument was reliable.

2.5. Administering the questionnaire. A total of 120 questionnaires were hand delivered to all the 120 households in the Mbofana local municipality. Respondents were given two weeks to complete the questionnaire and those who were not able to complete were given some extra time to do so. Queries or clarification on some of the questions were done at the point of collection. As a result all the questionnaires were completed giving a response rate of 100%.

2.6. Data analysis. The data obtained from the respondents were analyzed using SPSS package, version 21.0. The results were presented as descriptive statistics through the use of graphs, cross tabulations and other figures for the quantitative data that were collected.

3. Presentation of results

3.1. Biographical data of participants. The demography of the 120 participants took into consideration the race, age, gender, level of qualification, size of families, occupation and family income of participants. All the participants were heads of the families. According to the Wikipedia (2015a), family or household income is "a measure of the combined incomes of all people sharing a particular *household* or place of residence. It includes every form of income, e.g., *salaries* and *wages* or retirement income". The information offered some insights into the composition of the participants relative to gender, age, level of qualification, size of households, occupation as well as family income of the respondents.

3.1.1. Gender and age distribution. The composition of the participants in terms of gender and age is shown in the Table 2, Figures 6 and 7 given below.

Table 2. Gender distribution by age

Age limits (years)	Gender		Totals	Percentages
	Male	Female		
18-25	7	12	19	15.83%
26-35	15	10	25	20.83%
36-45	18	24	42	35.00%
46-55	11	9	20	16.67%
56-65	2	7	9	7.50%
Above 65	1	4	5	4.17%
Totals	54	66	120	100%

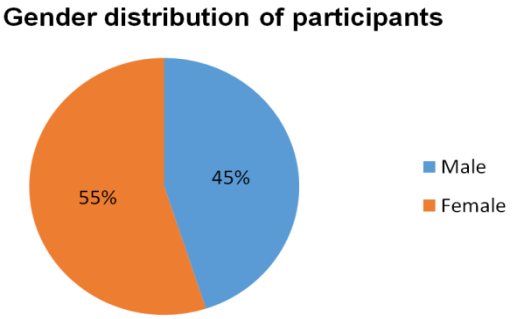

Fig. 6. Gender distribution of participants

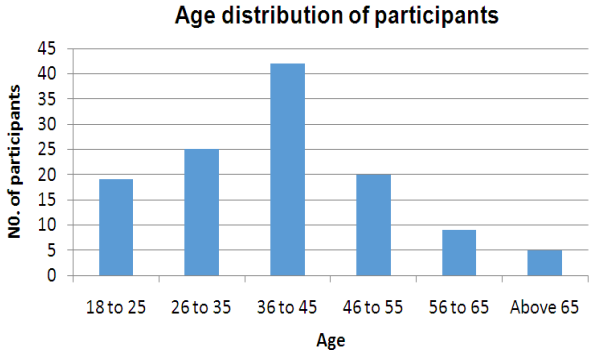

Fig. 7. Age distribution of participants

3.1.2. Participants' levels of qualification. Participants' levels of qualifications are presented as shown in Table 3 and Figure 8. The qualification variable is important as it reveals important information about its relationship to the sanitary facilities they use, cultural and social factors. The composition of the participants in terms of gender and qualification level is shown in Table 3.

Table 3. Gender and level of qualification of respondents

Highest level of qualifications	Gender		Totals	Percentages
	Male	Female		
Matric	31	40	71	59.19%
Certificate	4	7	11	9.17%
Diploma	5	12	17	14.17%
Degree	6	3	9	7.50%
Postgraduate	4	3	7	5.83%
Other	4	1	5	4.16%
Totals	54	66	120	100%

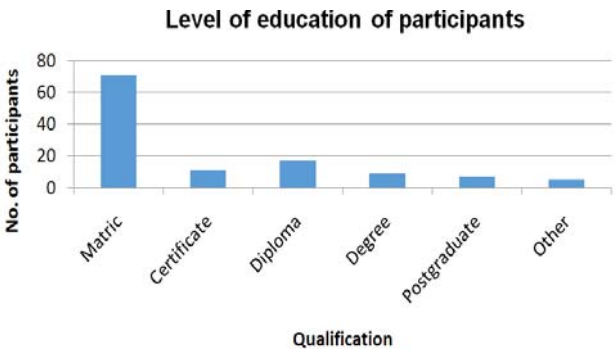

Fig. 8. Levels of education of respondents

3.1.3. Sizes of households. The family sizes of the participants are shown in Figure 9 given below.

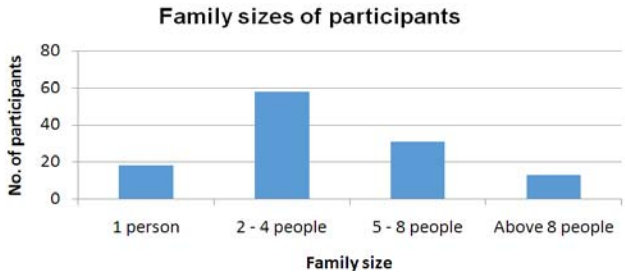

Fig. 9. Family sizes of respondents

3.1.4. Income distribution of the participants. The composition of the participants in terms of income is given Table 4 and Figure 10 below.

Table 4. Family income distribution of the participants

Salary bracket	Salary range	Count	% age
Bracket 1	Below 3500	11	9.17%
Bracket 2	R3500 ≤ salary 5500	23	19.17%
Bracket 3	R5500 ≤ salary 7500	46	38.33%
Bracket 4	R 7500 ≤ salary 10000	21	17.50%
Bracket 5	Salary of R 10000 or more	19	15.83%
Total		120	100%

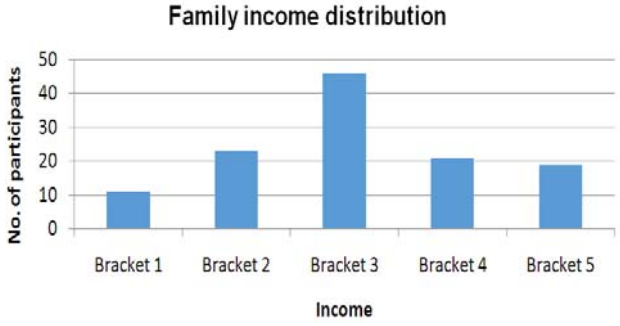

Fig. 10. Family income distribution of participants

3.1.5. Distribution of race. The racial composition of the participants is given in Figure 11 below.

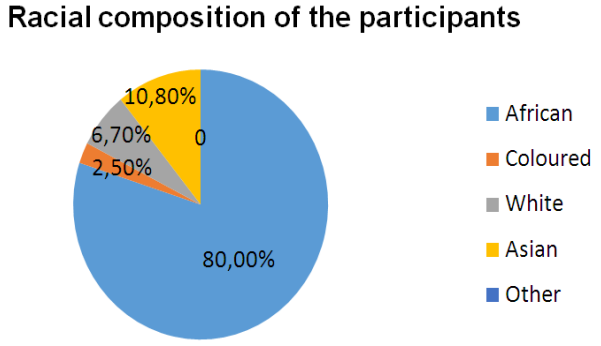

Fig. 11. Racial composition of the participants

3.2. Available facilities. Information on the available sanitary facilities is presented in Figures 12-22.

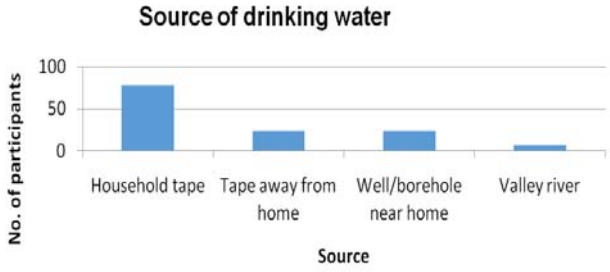

Fig. 12. Source of drinking water

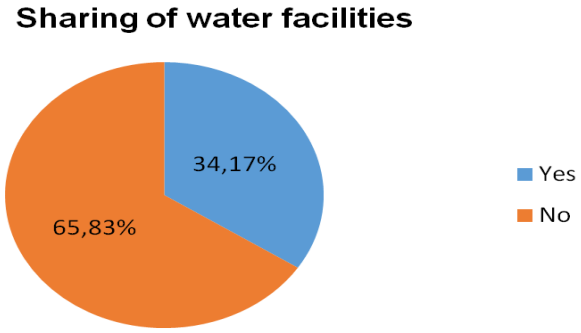

Fig. 13. Sharing of water facilities

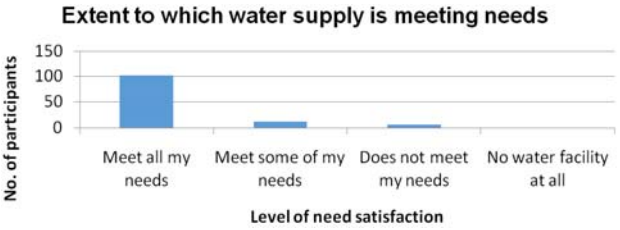

Fig. 14. Extent to which water supply is meeting needs

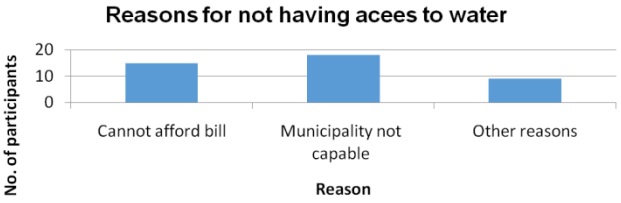

Fig. 15. Reasons for not having access water to water

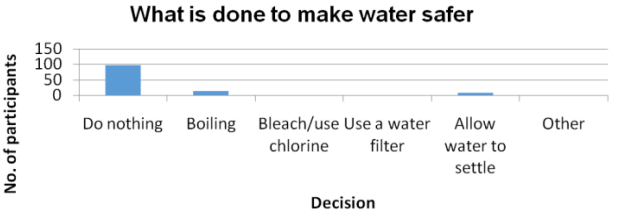

Fig. 16. What is done to make water safer

Fig. 17. Water disposals at your homes?

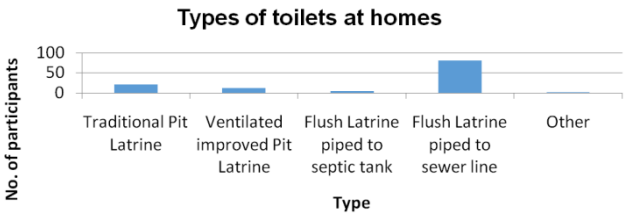

Fig. 18. Types of toilets at homes

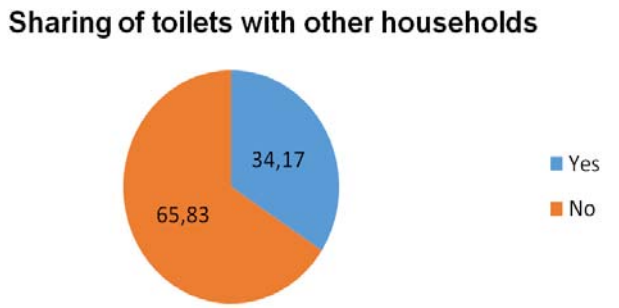

Fig. 19. Sharing of toilets with other households

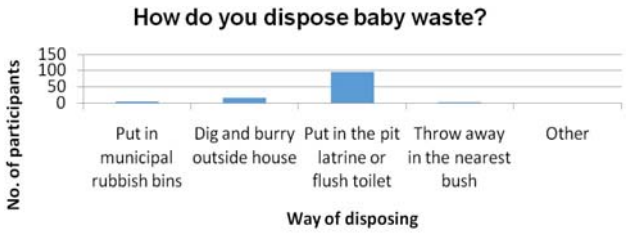

Fig. 20. Disposal of baby waste

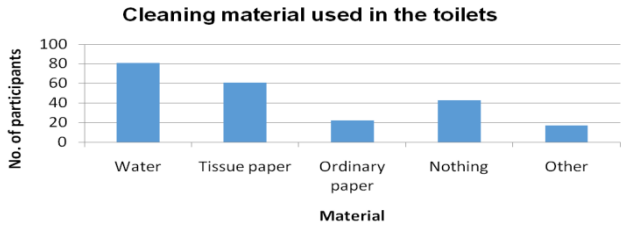

Fig. 21. Cleaning materials used in the toilets

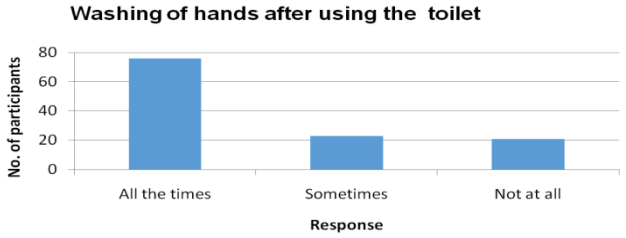

Fig. 22. Washing of hands after using the toilet

3.3. Cultural and social factors affecting sanitary and hygienic practices. Data from the participants on the cultural and social factors affecting the sanitary and hygienic practices are presented in Table 5.

Table 5. Cultural and social factors affecting sanitary and hygienic practices

Cultural and social beliefs (CSB)	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
CSB1: Water is a free gift from God or nature. We are not supposed to pay for it.	2 (1.67%)	4 (3.33%)	11 (9.17%)	42 (35.00%)	61 (50.83%)
CSB2: Water is controlled by a spiritual power and is an instrument filled with divinity. Making a river or a water source dirty may have serious spiritual consequences on the offender.	3 (2.50%)	2 (1.67%)	18 (15.00%)	78 (65.00%)	19 (15.83)
CSB3: Dirty river water or a dirty natural water source is as a result of evil spirits or a curse.	5 (4.17%)	2 (1.67%)	14 (11.67%)	64 (53.33%)	35 (29.17%)
CSB4: The remaining water after bathing a baby or a young beautiful girl is good for attracting customers to a fruit or food business when this water is used to wash fruits or utensils or to prepare the food for sale.	1 (0.83%)	3 (2.50%)	12 (10.00%)	63 (52.50%)	41 (34.16%)
CSB5: Using the remaining water after bathing a corpse of a relative to clean household utensils will make the spirit of the dead remain in the family.	2 (1.67%)	6 (5.00%)	8 (6.67%)	62 (51.67%)	42 (35.00%)

3.4. Improving sanitary facilities (ISF). Information relating to ways to improve sanitary facilities is presented in Table 6.

Table 6. Improving sanitary facilities (ISF)

Improving sanitary facilities (ISF)	Yes	No
ISF1: Are you satisfied with the type of toilet and sanitary facilities you have?	89 (74.17%)	31 (25.83)
ISF2: Suppose that there is new sanitary technology for toilets available in your ward. Are you interested in having this new technology at your house?	113 (94.17%)	7 (5.83%)
ISF3: Are you willing to take part in the provision and management of improved sanitary systems in your ward?	74 (61.67%)	46 (38.33%)
ISF4: Is sharing of water facilities a good idea?	108 (90.00%)	12 (10.00%)
ISF5: Suppose you have your own toilet facility. Are you willing to share the toilet facility with other households who are not necessarily your relatives?	45 (37.50%)	75 (62.50%)
ISF6: Are you willing to pay more than what you are paying the municipality to improve the sanitary conditions of the shared water facilities and shared toilet facilities available?	19 (15.83%)	101 (84.17%)

3.5. Correlation analysis. In this section the Pearson's Product Moment Correlation Coefficient (r) was used to analyze the relationships between the various factors in this study. The various factors

considered are level of education, size of family, family income, age of respondents, available sanitary facilities and then social and cultural beliefs.

- Level of education and type of sanitary facility (r = 0.712 significant).
- Size of family and type of sanitary facility (r = 0.138 insignificant).
- Family income and type of sanitary facility (r = 0.789 significant).
- Age of respondents and cultural/social factors (r = 0.364 significant).
- Level of education of respondents and cultural/social factors (r = -0.415 significant).
- Size of family and cultural factors (r = 0.108 insignificant).
- Family income and cultural factors (r = 0.058 insignificant).

4. Discussion of results

4.1. Access and adequacy of sanitary facilities and services: source of drinking water. The majority of the people (85%) have access to safe water supply and this is pleasing. From the responses that were obtained from the participants it may appear as if people in the targeted area were not aware of ways to make water safer for drinking. Water coming from a tape does not necessarily mean it is safe to drink. About 80.83% do not do anything to the water they drink. They just drank it like that. Only 11.67% took an extra step and boiled it before drinking. About 7.5% of the targeted population allowed the water to settle first, then collected the clear water at top and then threw away the remaining dirty dregs. Again water being clear does not necessarily imply that it is safe for drinking. People should be educated about water filtering and bleaching as methods to make water safer for drinking. The 18% (= 9.17% + 5.83%) of the people got the water from boreholes, wells and rivers. These sources of water for drinking are not safe. According to Vestergaard (2015), waterborne diseases are caused by drinking water that is contaminated. Many types of diarrheal diseases such as Cholera and other serious illnesses such as Guinea worm disease, Typhoid, and Dysentery are caused by drinking contaminated water. Water related diseases cause 3.4 million deaths each year. Bleaching and water filtering remove the bacteria and pathogens that contaminate water and this decreases the incidence of waterborne diseases.

4.1.1. Adequacy of drinking water source. The water facilities in the targeted area for research were not adequate. A significant number of people (34.17%) are sharing water sources. About 12.50% of the people claimed that they did not have water in their homes because they cannot afford the municipal water bills. The most disappointing thing is that 15% of the people were blaming the local municipality for being not able to bring water into their homes. These people were able to pay municipal bills but it is the municipality that is not capable of bringing the water facility into their homes. The other 7.50% had other reasons. The danger of sharing drinking water sources with other households is that it may cause spreading of diseases. A disease outbreak in one household can easily spread to other households sharing the same drinking water source. Safe drinking water is everybody's business. Managing drinking water source is supposed to be a shared responsibility among the households sharing the drinking water resource.

4.1.2. Toilet facilities. A large number of participants (67.57%) have flush latrine piped to the sewer line, 17.50% have traditional pit latrine, 10% have ventilated improved pit latrines and 5% have flush latrines piped to the septic tank. A very small number, 0.083% had other which in most cases means no toilet at all. The traditional pit latrines owned by about 17.50% are not good. Without proper control, flies can bring back diseases into the house from those pits. Also most people do not use them at night since they are a distance away from the main house and there is usually no light or electricity in these toilets. The local municipality authorities must work hard to improve toilet facilities.

4.1.3. Adequacy of toilet facilities. The toilet facilities are not adequate; a significant number of people (34.17%) are sharing the toilet facilities. There are so many dangers of sharing toilet facilities with other households. According to the Dutch Magazine (2009), most people do not want to sit down when using a shared toilet due to bad hygiene and they always try to postpone going to that shared toilet. These people try to avoid contact by hanging above the toilet chamber. The Dutch research has shown that not sitting down in a toilet can cause cystitis. Also postponing a toilet visit might cause waste products produced by the body to go into the blood stream.

4.2. Level of satisfaction with the available sanitation facilities and services. Extent to which does the water you get meeting needs. The water supply is not meeting the needs of 18% (12% + 6%) of the people. Thus all these people are not satisfied with whatever water facilities they have at the moment. How can one be happy when water supplies are not meeting your needs?

4.2.1. Sharing of water and toilet facilities. Sharing is not usually a choice in real life. Most people

would want to have their own private water facilities. They share because there is not option and they cannot afford their own facilities. About 34.17% of the people share water and toilet facilities and these people are happy with the sharing. Repairs or replacements of shared facilities take time because the users have to report to authority which is usually not possible after hours or during holidays and weekends.

4.2.2. Municipality is not capable of bringing water into homes. The fact that the municipality is not capable of bringing water into their homes makes people unhappy. These people have money to pay for the facilities but it is municipality that is incapable of bringing the services to the people. If water cannot be brought into home then it means your toilet cannot be inside your house.

4.2.3. Satisfaction with the type of toilet and sanitary facilities you have. Generally, the majority of the participants (74.17%) are happy with the toilet and sanitary facilities they currently have. There is still more work for the local municipal authorities to assist the remaining 25.83% who are not happy with facilities they have.

4.3. The impact of cultural and social factors of sanitary and hygienic practices. According to Hofstede (1984), "culture is the collective programming of the mind which distinguishes the members of one category of people from another". The African cultural beliefs in charms or *muthi* as is known in South Africa have failed to die even though both the Christianity religion and western civilization have eaten large chunks of these beliefs.

According to Mander et al. (2015) the trade in traditional medicines in South Africa is estimated to be worth R2.9 billion per year, representing 5.6% of the National Health budget. There are 27 million consumers for this trade and it is vibrant and widespread. It is estimated that at least 133 000 people are employed in the business. The largest percentage of people in this business is from rural women. From the responses of the questionnaire at most 6.67% of participants agree to the cultural and social factors. Two of the five beliefs can have disastrous effects on the much needed hygiene to our societies. Obviously after bathing a baby or a beautiful young daughter the water becomes dirty. Now the same water is used to clean vegetables and fruits at someone's market to attract customers. This is very unacceptable and unhygienic. Diseases can easily spread from the beautiful baby to the large numbers of customers that come to the market.

It is difficult to understand how some members of societies still accept these very strange cultural beliefs. Imagine someone who is already affected by some illness dies and is taken to the mortuary where there is the danger of contracting more infectious diseases from other corpses. This person's body is brought home and bathed in preparation for burial which is alright. The problem comes when the water after cleaning an infected corpse is used to clean household utensils in the belief that the spirit of the diseased will remain in the family. The danger is that the infectious diseases that killed the person might be passed from one dead person to the living relatives.

4.4. A discussion of correlation results. The Pearson's Product Moment Correlation Coefficient was used to determine the correlation between various factors in this study. The various factors considered were level of education, size of family, family income, age of respondents, available sanitary facility and then social and cultural beliefs.

4.4.1. Correlation between level of education and type of sanitary facility. The analysis shows that there is a positive correlation between level of education and type of sanitary facility a participant has (Pearson correlation coefficient $r = 0.712$). The more educated a person is the more he or she is aware of the importance of better sanitary facilities and services.

4.4.2. Correlation between family income and type of sanitary facility. The correlation analysis shows that there exists a strong positive correlation between family income and type of sanitary facility the household has (Pearson correlation coefficient $r = 0.789$). The higher the family income the more money is available for better sanitary facilities.

4.4.3. Correlation between age of respondents and cultural/social factors. The correlation analysis shows that there exists a weak correlation between age of respondents and cultural factors (Pearson correlation coefficient $r = 0.364$). Most of the young are not interested in accepting these very old cultures.

4.4.4. Correlation between level of education of respondents and cultural/social factors. The correlation analysis shows that there exists a negative correlation between the level of education of respondents and cultural factors (Pearson correlation coefficient $r = -0.415$). This means that the more the educated the participant is, the more he/she does not want to hear about cultural beliefs.

4.4.5. Correlation between the size of family and type of sanitary facility the households are using. The analysis shows that there is no significant correlation between the size of family and type of sanitary facility the households are using (Pearson correlation coefficient $t = 0.138$). The number of people in a single household does not determine the type of toilet facility used in that household.

4.4.6. Correlation between the size of family and cultural or social factors. The correlation analysis shows that there is no or very weak correlation between the size of family and cultural or social factors (Pearson correlation coefficient $r = 0.108$). This means that people can decide to believe or not to believe and this has nothing or very little to do with the size of their families.

4.4.7. Correlation between family income and cultural factors. The correlation analysis shows that there is no correlation between family income and cultural factors (Pearson correlation coefficient = 0.058). The family income cannot determine whether the cultural and social beliefs are acceptable in the household or not.

Conclusions and recommendations

The issue of sanitation is not only important to South Africa but the world as whole. In real life most of the people want good facilities but the problem arises when it comes to paying for them. This is evidenced by the fact that only 15.83% are willing to pay more than what they are paying now for better shared sanitary facilities. Poor sanitation has grave consequences and much have to be done to improve sanitary facilities in the municipality. As such the following section provides recommendations for policy makers and the communities.

In view of the study findings as well as the previous literature the following recommendations can be offered to make the world a better place and increase the living standards of the area surveyed:

- Improving availability of information is one of the ways to increase awareness levels of the dangers of cultural and social beliefs. People should be made aware of the diseases associated with unhygienic conditions. Dirty water should not be used for cleaning vegetables and fruits at the market. Water from washing corpses has diseases that can easily pass on to the living relatives.
- Sharing of toilet facilities by households is unacceptable to most people. The authorities should consider this when making plans for communities. Most of the people may be willing to share water facilities but as for toilet is another story. The provision of shared toilet facilities is supposed to be minimal as people prefer private toilets.
- When considering water consumption and provision of toilet facilities for communities the majority of the households are made up of 2-4 people. Even the planning of sewer facilities 2-4 members per household should be considered in planning.
- When making plans for services charges the municipality may want to impose, the family income of the majority of the people is between R5500 and R7500. All future charges should be made within the reach of the majority of the people.
- Municipal authorities have to work hard in bringing water to the 18% of the population who do not have access to shared safe tape water. These people obtain water from wells and rivers putting them at high risk of waterborne diseases.
- Drinking water safety awareness campaigns are very necessary in Mpofana Local Municipality. Most people do not take the extra step of making water safer for drinking. People should be made aware of these ways of making water safer for drinking such as water filtering, bleaching, or chlorination.
- Coming to disposal of waste water and baby waste. Most people are not aware of the dangers. It is unhygienic to throw wastewater outside house or water gardens. This dirty water may have diseases that may affect children who play outside the house. Throwing baby waste in nearest bush is also very unhygienic. Flies may bring back to the house the diseases from the baby waste.
- People must be encouraged to clean themselves after using the toilet. A significant number (35.83%) use nothing. It is better to forgo favorite beer for a day or two or hair saloon for a week so as to buy tissue for your toilet. People should be encouraged to wash their hands all the times after using the toilet.
- When planning for sanitary facilities for communities municipal authorities should consider mainly those in low income bracket for shared facilities. There is correlation between family income bracket and type of facility the household will have. Those with higher family income will usually have their own better facilities. Proper planning and the necessary help must be given to those struggling to build their own facilities.

Limitations and future studies

The study underlying the present article concerns itself with facilities and services available to the households, cultural and social factors affecting sanitary and hygienic practices and possible ways to improve sanitary facilities. It may be necessary to:

- Determine how safe the drinking water in Mpofana Local Municipality is. This can be done by taking samples and testing the water for diseases, contamination or level of pollution.
- Determine common diseases in the area by collecting fresh human waste and test for common diseases that are caused by poor sanitary conditions and then come up with measures to control or reduce the spread of these diseases.
- A study of non-revenue water management in the municipality could also be insightful.

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