Original article

The nominal group technique for participating communities in analyzing rural town water and sanitation situation

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Abstract: To explore sanitation problems and their causes, a series of independent group discussions was conducted with residents of a rural town stratified into seven social levels using the Nominal Group [Discussion] Technique (NGT).

Indiscriminate open field defecation and garbage disposal were the two most mentioned and ranked problem items followed by unsanitary food and drink services. The top identified cause items were absence of public latrines, failure of the municipality to control town sanitation and absence of solid waste disposal facilities.

A Combined group gave the highest Median Agreement Score (MAS) of 10. The smallest median agreement was scored by Youth and Health workers' groups (MAS=6.5) for mentioned, and by youth and Ordinary residents'groups (MAS=4.5) for ranked problem items. Health workers' group (group 7) ranked MAS of 5.

The MAS for causes of sanitation problems of the Combined group was 8 for mentioned, and MAS of 4 for ranked items.

Development workers ought to give due recognition to communal stratification when making need assessment for better realignment of diverse view points and interests during project development. Modifying and validating NGT for a broader use in assessing community health problems and needs is suggested. [*Ethiop. J. Health Dev.* 1997;11(1):37-42]

Introduction

Poor environmental sanitation and lack of safe and adequate water supply are known to adversely affect human health(1,2,3). At present, the sanitation and water supply situation in most Ethiopian towns, including the capital Addis Ababa, is very poor(4).

To improve this situation, the search for a practical and acceptable method of community participation is vital(4,5,6). The first essential step in community participation is intensive consultation with the community(7).

Different approaches of community participation and consultation have been used in environmental health activities(8). These include seeking contribution , forming self help groups, deploying community specialized workers and mass action. Consultations have been done by simply talking to local officials, influential people, interviewing all or a segment of the resident population or by calling public meetings.

Communities in both small and large towns are composed of families and groups of diverse Psycho- socio-cultural, demographic, economic and political backgrounds(8,9). This stratification can represent a more or less distinct spheres of interest which merge as one on some and conflict on yet other communal issues.

Despite underdevelopment of health services management and incorrect community participation

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approaches, it has become a tradition to attribute failure of projects to unpreparedness (unwillingness) of communities to participate.

The Nominal Group Discussion Technique (10) has the advantage of bringing different people to a designated discussion forum where each participant silently generates ideas and forward them to the floor with equal opportunity and pursue them without being threatened from(but realigning himself with) other discussants; as such assessing real feelings and objective experiences. This is unlike other assessment methods, such as focus group, formative evaluation and rapid methods, where opinions of dominant (influential) individuals may be more expressed and/or ideas may be heavily influenced by that of investigators and data collectors.

In this study, the NGT is used to identify sanitation problems and their causes as perceived by residents across societal groupings inorder to initiate action to improve the town's sanitation; also the application of the NGT as a method of exploration into communities health problems in urban settings is appraised.

Methods

The study was conducted in a small town of Koladiba north west Ethiopia with a population of some 6000. The first national health center was opened in the town owing to a large number of deaths from a malaria epidemic in the Dembia plain. Following that, for over 40 years now, the area has served as field training site for different categories of health science students with their massive inputs of health programms, including in water and sanitation. Residents who lived in the town for at least one year, who are older than 15 years of age and are able to read and write were the source population for the study. For the purpose of sample selection for the study, after sufficient consultation with informants, seven different stratum (interest groups) were identified. These were:

Group 1. Women group
Group 2. All development agencies
Group 3. Youth group
Group 4. Town administration (authorities)
Group 5. Influential people
Group 6. Ordinary residents
Group 7. health workers Additionally,
Group 8. Combined group and
Group 9. Expert group were formed.

After dividing the town into seven geographic zones, using informants, one participating influential, youth, woman and ordinary resident were identified by walking door to door and invited for the group discussion from each zone. Health workers group was composed by representation of all professional categories from the health cneter and a community health agent in the town. Town authority group was made up of individuals from the different sections of the municipality, district administration, court and police offices. Development agencies group was a representation from district education, agriculture, natural resources, finance offices, schools and Amhara Development Association.

Combined group was formed by selecting one person from each of the seven groups for repeat discussion on each issue. Expert group was made up of knowledgeable (about the town) academic staff of the different departments of the Gondar College of Medical Sciences and Kola Diba health center. The number of discussants in each group varied from six to eight on different days. *Data Collection Procedure*: After a brief introduction on the purpose and conduct of the study to a gathering of all participants by the principal investigator, each of the seven nominal groups was led to its respective discussion room. A trained medical doctor or nurse was assigned for each group to lead and moderate the discussion according to a modified nominal group discussion procedure (Appendix 1). For four mornings in a row the seven groups discussed the four identified water and sanitation issues (Appendix 2) simultaneously in different rooms. Individuals selected from the

seven groups formed a Combined group and discussed the same issue on four afternoons. There was no payment for participation except providing tea and cookies during breaks.

Data Analysis: Ideas listed down by each group at the end of step 3 were reorganized into categories of sanitation problem and cause items by the investigators such that all ideas stated by the nine groups are accommodated. The categories thus formed were used as data for analysis. If a category is included in the list of ideas made by a group, we called it MENTIONED ITEM. Out of the list of mentioned items, the ones selected as 10 most important by a group on step 4 were named RANKED ITEMS.

Results

All together the ideas brought by the nine groups could be organized into 20 sanitation problems and 22 cause/reason items.

Tables 1 and 2 show the top five mentioned and ranked sanitation problem and cause items idnetifiesd by all groups, respectively.

Uncontrolled (open field) human excrement and garbage disposal were the two problems mentioned and ranked by all the nine groups. Unsanitary food and drink services have also been mentioned as problems by all but ranked by seven groups.

The two items at the top of the list of causes of sanitation problems of the town were: absence of private and public latrines and lack of sanitation control by the municipality for mentioned, and lack of sanitation control by the municipality and absence of solid waste disposal facilities for ranked, items.

Items that received least attention (mentioned or ranked by two or less groups) were: absence of drainage system and poor housing condition as problem items, and misuse of collected sanitation revenue(tax) by the municipality, overall underdevelopment and poverty of residents, lack of coordination between concerned agencies, and poor sanitation of the prison located in the centre of the town, as cause items.

13(65%) and 8(42%) of identified sanitation problems were similarly mentioned and ranked respectively, by five or more groups.

Out of 36 possible pairs (combinations) that could be formed among the 9 discussion groups for similarity analysis, groups 4 and 5 mentioned the highest (11) and groups 4 and 6 ranked the highest (10) similar problem items. Likewise, groups 4 and 7 mentioned the highest (12) and groups 4 and 5 ranked the highest (7) similar cause items.

Least similar pairs (similar in four or less items) were groups 1 and 3 for mentioned and 1 and 3, 2 and 6, and 3 and 6 for ranked problem items, and groups 2 and 5 for mentioned and 1 and 6 for ranked cause items.

The Combined discussion group had the highest MAS of 10, equal to group 4, for mentioned and highest score of 6 equal to group 1, for ranked problem items. The smallest MAS was scored by groups 3 and 7 (6.5) for mentioned, and by groups 3 and 6 (4.5) for ranked problem items. While the highest MAS for ranked items was seven, Health Workers group ranked 5th.

Table 1: **Top 5 mentioned and ranked sanitation problem items of Kola Diba town**

Rank	Mentioned Item	Mentioned by, # of groups	Rank	Ranked Item	Ranked by, # of groups
1	Uncontrolled open field defecation	9	1.	Uncontrolled Open Field Defecation	9
1.	Uncontrolled Garbage Disposal	9	1.	Uncontrolled Garbage Disposal	9
3.	Absence Of Private & Service Latrines	8	1.	Absence Of Private & Service Latrines	9

4.	Unsanitary Food & Drink Services	7	1.	Unsanitary Food & Drink Services	9
5.	Uncontrolled Disposal Of Dead Animals	6	5.	Absence Of Abattoir	8
5.	Absence Of Abattoir	6			
5.	Absence Of Public Latrines	6			

The MAS for cause of sanitation problem of the combined group was 8 equal to groups 7 and 9 for mentioned, and 4 equal to groups 4, 5 and 9 but higher than all other groups, for ranked items. Group 5 has the lowest MAS (5) for mentioned, and groups 2, 3 and 7 the lowest (3) for ranked, cause items.

On a composite scale of the top five list of - 1.
mentioned items of the combined group
2. mentioned items of all groups, and 3.
ranked items of all groups,
uncontrolled open field defecation, disposal of dead animals and garbage appeared as common sanitation problems,and lack of attention from the muncipality, absence of solid waste disposal facility and unimplemented town's master plan as common cause/reason items.

Discussion

While four of the 20 sanitary problems are of related educational and administrative nature, 16 are considered strict sanitation problems. Participants have agreed that the town exhibits a lot of deviation from basic sanitary standards.

The composition and scope of the listed items, contrasted to that of the experts, gives a good coverage and assessment of the towns sanitation problems and their causes.

Before reorganizing the mentioned ideas into item categories by the investigators, we have been able to see that the participants have spoken out their subjective and objective experiences on the discussion issues in their own special way. Not unsurprisingly, the observation which motivated and compelled the investigators to undertake this study, uncontrolled massive open field defecation and garbage disposal practice, has also been identified as the most important sanitation problem by the discussion groups. Similarly, absence of human waste disposal facilities (private and public latrines) has been the top identified cause for the poor sanitation in the town. By this, one can be assured that, at least, there is no perception gap (ignorance), on the side of the participants, in accepting the current sanitation status of the town as poor.

Discussion participants have shown to be particulary unhappy (distressed) about the poor sanitation of food and drink services. The realization that they are public services compounded by the fear that they may serve as a common source of infection might have heightened the concern. Also in this connection, absence of slaughter house (abattoir) resulting in unsanitary out door animal slaughtering for public meat supply in poorly cared for butcher houses is noted as an important (top 5) mentioned and ranked item.

Table 2: **Top 5 mentioned and ranked cause items for the sanitary problems of Kola Diba town**

Rank	Ranked item	Ranked by, # of groups	Rank	Mentioned Item(#)	Mentioned by, # of grups
1.	Lack of Attention From Municipality	8	1.	Absence of Private & Public Latrines	8
2.	Absence of Solid Waste Disposal	6	1.	No Control On Food & Drink Services	8
3.	No Control On Food & Drink Services	5	3	Absence Of Solid Waste Disposal	7
3.	Absence of Abattoir	5	3.	Unimplemented Town Master Plan	7
3.	Unimplemented Town Master Plan	5	3.	Absence Of Abattoir	7

3.	Failure in Giving & Receiving Health Educ.	7			
3.	Lack Of Attention From Municipality	7			

When discussing the cause, participants primarily pointed to the failure of the municipality to discharge its coordinating and controlling responsibility in sanitation. This message speaks against the often heard controversy over whether the municipality, the health centre (MOH), or the public is to be charged (blamed) for sanitation of rural towns. The participants have also defended themselves against the inadvertent criticism and conclusion by administrators and health workers that cause of failure of health projects is lack of community participation and/or awareness.

The fact that a good number (usually>60%) of items are similarly mentioned by five or more groups shows that participants fairly share the way they perceive and realize the town's sanitation problems and their causes.

It is interesting to note that group 8 (combined) had the highest MAS for both mentioned and ranked sanitation problems and cause items. This means, the repeated and combined nominal group discussion has well accommodated and realigned ideas from different backgrounds. Indicating the need for assuring the balanced representation of important strata in society in development consultation exercise.

The consistently highest pair similarity and high MAS reached by group 4 (town administration) shows that they fairly share and understand residents' opinion on sanitation problems and their causes. An attribute that could have emanated from their ability to list more problem and cause items than the other groups, perhaps as a result of frequent contacts they had working in the municipality and other local government offices.

It is alarming that health workers group (7) repeatedely scored in the least category of MAS for both sanitation problem and cause items; suggesting a rather low degree of understanding and sharing communities' feelings and experiences on sanitation issues.

The fact that 3 out of 5 - 6 top sanitary problem and cause items (mentioned and ranked) were commonly picked as priority items by the 3 independent scales shows the seriousness of the demand to improve the towns sanitation in this selected areas. Further more, the consistency of the items to appear in three different measurements qualifies the stratified nominal discussion procedure as a reliable explorative method for use in community health (sanitation) diagnosis.

The major limitation of this technique is that it involved people who are able to read and write only. Hence, it is recommended that the method be modified so as to make it simpler and workable with illiterate people too. This is especially necessary during the silent generation and presentation of ideas in this technique.

The town's administration and health authorities can use the list of items produced in this study to plan improved sanitary services for the town. The municipality should take the primary responsibility in managing sanitation activities of the town. To exercise control of sanitation in the town the municipality might have to devise a mechanism to ensure observance of at least minimal sanitary standards. Front line health workers should be able to establish good working relationship and acquire skill on community need assessment to be able to reflect on real feelings of their catchment population.

Sanitation project initiators should consider societal differentiation to ensure their fair representation beginning at the stage of situation analysis. And finally, NGT needs to be further validated for use in quick and reliable exploration of public interest in water and sanitation and other community health programmes.

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Appendix 1. procedure of the nominal group discussion technique

The research assistant distributes the Nominal Group Task Statement Form, reads out the discussion issue on it and advises the participants to follow him for the NG steps.

STEP 1. *Silent Generation of Ideas:* each participant silently generates ideas and writes them down on the NG task statement form.

STEP 2 *'Round Robin' Feedbacl of Ideas:* the research assistant asks each participant in turn to contribute one of the ideas he\she has written until each finishes his ideas. Each idea is numbered and written on a flip chart.

STEP 3. *Serial Discussion of Ideas:* each idea listed will be discussed in turn. The discussion's objective being to obtain clarity and to air out points of view, but not to resolve differences of opinion.

STEP 4. *Final Vote:* each participant selects 10 ideas which he thinks are most important from the total and list them on to a separate sheet of paper and rank them from one to the highest(usually ten).

Appendix 2. nominal group discussion issues

DAY 1. a. What water problems do you see in the town?
b. What sanitation problems do you see in the town?
DAY 2. a. What are the causes/reasons for the town's water problems?
b. What are the causes/reasons for the town's sanitation problems? DAY 3. a. What should the town's administration do about water and sanitation? b. What should residents of the town do about water and sanitation? DAY 4. a. What should the health centre do about water and sanitation in the town?
b. What should other health agencies(like the GCMS) do about water and sanitation in the town?