

ORIGINAL ARTICLE

Feasibility of Community Needs Assessment Tools as an Alternative For Health Survey in Describing Health Profile of A Community - A Mixed Method Study In Muddungere, Karnataka, India

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ABSTRACT

Introduction: In India, even with planned health services, it is difficult to reach the health goals without community participation. While Community needs assessment approach (CNAA) tools like Focused group Discussion (FGD), Village mapping and matrix ranking have been effective in quickly gathering information, surveys have been conventionally preferred. **Aim & Objective:** The present study compares qualitative and quantitative methods to understand feasibility of using CNAA tools in place of survey as an alternative tool **Methodology:** Mixed Method research employing Survey and CNAA methods of FGD, Village Mapping, transect walk and Matrix ranking score was carried out as a part of academic activity of National Service Scheme(NSS). Data was represented in form of percentages and frequency tables. Association was measured using Chi Square using Epi Info TM version 7.2.1software. **Results:** Using quantitative survey, we found that 71% used piped supply and 93.1% of the households used toilets. But 6.9% of them still preferred open fields for defecation. Amongst the participants of FGD, it was found that 90% participants preferred going to government hospitals. Comparable data found for variables like Maternal and child health indicators, Sanitation practices and burden of Non communicable diseases. Partially comparable results were found for burden of communicable diseases. **Conclusion:** CNAA research tools demonstrated comparability with survey in most areas of health concern and reduced the time required for conducting research without compromising the quality of results

KEYWORDS

Comparability, Qualitative Methods, Quantitative Methods, Feasibility, CNAA

INTRODUCTION

The Community Needs Assessment Approach (CNA) aims to enhance population health by pinpointing essential factors. Introduced in 1997 under India's National Family Welfare Program, it supplanted the ineffective "Target-based Approach" with a "Target-free Approach," giving priority to community needs assessment (1,2). This engaged crucial grassroots workers such as Auxiliary Nurse Midwives and Health Assistants. Although traditional surveys are widespread, they might miss sensitive or critical inputs. Mixed method designs, integrating CNA tools with surveys, are now favoured for effectively gathering both objective and subjective data (3,4,5,6).

Surveys excel at evaluating large populations but can be time-consuming and costly. In India, community involvement is indispensable for achieving health objectives, given the diverse factors like socioeconomic status and cultural beliefs influencing health behaviours. CNA, which incorporates community stakeholders, has exhibited promising outcomes in health planning (7,8).

Both CNA and surveys aim to grasp on-the-ground issues but diverge in execution. CNA underscores community involvement to uncover fundamental problems, behaviours, and themes, while surveys prioritize statistical power and response rates, particularly through personal interactions (9).

Aims and Objectives

- To compare results from qualitative and quantitative methods through triangulation
- To describe the comparability of CNA technique findings with that of health survey and describe the feasibility of CNA tools as an alternative to village health surveys

MATERIAL & METHODS

As a part of National Service Scheme (NSS), a door to door survey and a community needs assessment survey were taken up in Muddungere village by the Department of Community Medicine. The total population

was 600 from 140 households in the village. Both quantitative and qualitative methods of research were undertaken. A survey of the village was carried out interviewing households and the health care workers with the community stakeholders. In the CNA exercises, digital transcripts of FGD were triangulated along with other CNA tools to generate codes and categorize themes. Both set of results were then compared.

Quantitative survey: A total of 50 volunteers worked for conducting survey.

Study design: A Descriptive Cross-sectional survey

Study Setting: Muddungere village situated in north-eastern part of Mandya taluk

Study population: Permanent residents of Muddungere village

Study duration: 1 month (1st November to 7th November 2022)

Inclusion criteria: 1) Residents of Muddungere village 2) Those who were willing to participate

Exclusion criteria: Nil

Sampling method: Whole population

Data collection: Door to door survey was done by the trained volunteers. There were 14 teams consisting of 3 researchers in each team, who were supervised by Senior residents of Community Medicine department. Pretested, semi-structured questionnaire was used for the survey. The researchers were trained prior to the survey. The questionnaire consisted of sociodemographic, environmental factors, health events, healthcare expenditure of the family, usage of family planning methods by eligible couples, breast feeding of infants & children, immunization coverage, health problems of the individuals and data pertaining to habits of smoking & alcohol consumption were collected. During the survey completion of the questionnaire was ascertained by the team members and cross checked by one another. Data was entered in Microsoft excel and analysed using descriptive statistics.

Qualitative study:

Study design and the participants: Qualitative study using Focussed group discussion, matrix

ranking scoring and Village transect walk was carried out by a team consisting of a facilitator assisted by two senior residents and two ASHA workers.

Focussed Group Discussion: The participants included 12 members that consisted of ASHA workers with work experience of 10 Yrs, Anganwadi teachers with work experience of at least 15 yrs., senior health assistant female with 10 yrs. work experience, Community health officer with two years' experience of work for the area and self-help group members residents aged between 33 years to 55 yrs. FGD was carried out by a facilitator who is a faculty in department of community medicine with ten years' experience. The facilitator was helped by other team members (senior residents) to take notes of the discussion and to carry out matrix ranking sheet scoring. At the start of the session, the participants were introduced about the methodology and intention of the exercises. Opinions were invited from participants regarding the topics of concern. The group was then asked to prioritize health issues based on its prevalence in the village. The discussion lasted for nearly forty-five minutes. A digital voice recorder was used with consent to record the discussion which was then transcribed precisely.

Village transect: An observatory walk was conducted by a special team. The special team comprised of Village Panchayat head, the National sample survey officer, ASHA workers, Villagers team of 3 Senior Male members of the Village. The layout of the village was observed and the social aspects were examined. Map of village was prepared and areas of health concern were added on the map.

Methodology: Comparability criteria for qualitative and quantitative study was constructed in the following way. For Qualitative study if on questioning the participants mentioned that 9 out of ten people were doing a practice, the percentage was taken as 90%. After wards these percentages were classified into three main categories where <50 % represented -No

agreement, 50-80% (moderate agreement and >80% was taken as strong agreement on an issue. Then the percentages or proportion of people found to practice the same theme in the quantitative survey was compared using this scale. If the percentage of one of the types fell in the same category, then they were called comparable, if the percentages of quantitative and qualitative research fell in adjacent categories on both sides, they were considered partially comparable but ,if the percentages of comparison were in extreme categories ,they were taken as non-comparable. For example if the percentage for quantitative study is 90 % and qualitative study is 80% its taken as comparable, on the other hand if one study the percentage is 33% and another study percentage is 69%, its taken as moderate but if one of the percentages is 33% and the other one 90% then its not comparable.

Ethical Clearance

IEC Clearance number MIMS/IEC/2023/794 was taken from institutional Ethics committee on 9th June 2023.

Consent: Informed verbal consent was taken from all the voluntary participants for the survey and formal consent from the authorities conducting the survey.

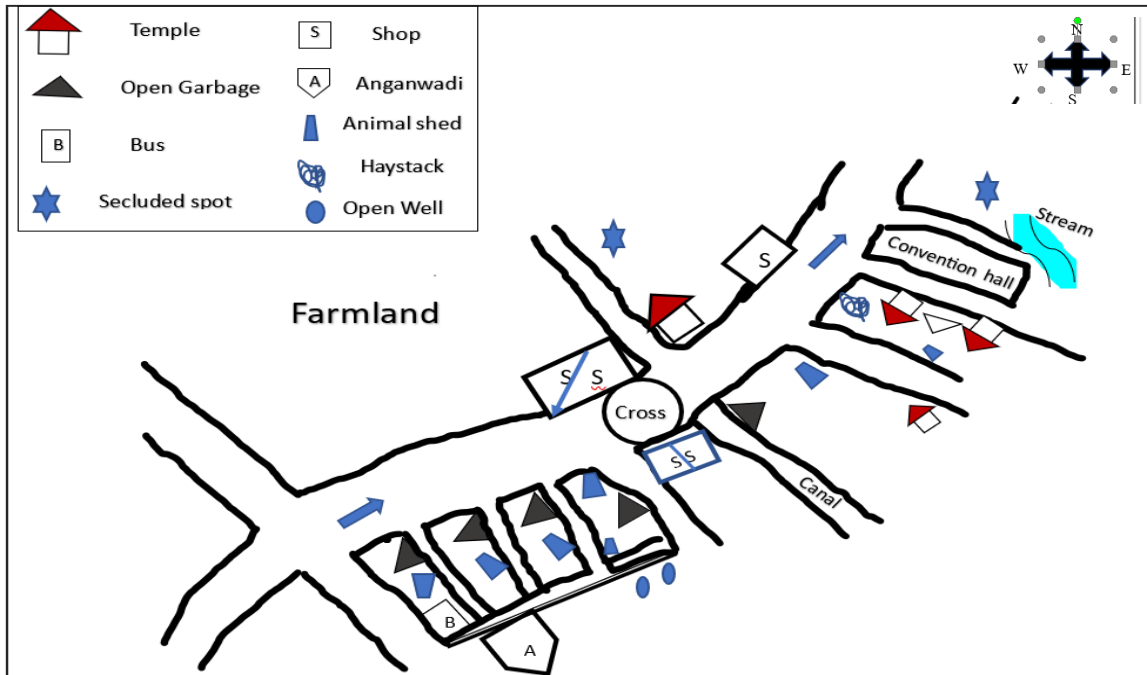
Data Analysis: Data was represented in form of percentages and frequency tables. Association was measured using Chi Square. Epi Info TM software 7.2.1 were used to analyse the data. Qualitative data was analysed from the transcripts, codes were generated and categorized into themes using manual method based on grounded theory of approach.

RESULTS

The data was derived from survey, FGD, transect walk and matrix ranking score which was triangulated using data analysis method for obtaining results from multiple methods.

Figure 1 shows the Map of Muddungere Village that was recreated using the transect walk.

Figure1: Muddungere Village Map depicting areas of health concern



It was found that, the majority households were dependent on piped water supply (70.4%) for water needs. Bore wells (24%), Open wells (4%) were also utilized for domestic and drinking purposes. With respect to sanitation, about 90% of the households had toilets in their houses. 6.9% practiced open defecation. Majority (86%) utilized LPG as the main household fuel while only 2% used firewood. The rest depended on both sources for cooking. The major fuel used for bathing

purpose was firewood (94%). It was observed that there were cattle sheds in 50% of the houses of which 60% harboured vector breeding sites in and around them. The association of presence of cattle sheds and vector breeding sites was found to be significant ($P < 0.05$). The most common occupation of villagers was agriculture. Table 1 shows the results of survey and the qualitative methods used and Their comparability

Table 1: Comparability of the Utilization of Survey and qualitative research methods data for the Village population of Muddungere

Qualitative methods	Survey	Inference on comparability
Source of drinking water		
Using transect walk -Majority houses- Piped supply (70% or atleast 7 of 10)	71%, used Piped supply	Comparable
There was canal as represented in the map cutting across the village.		
Fuel Usage		
90 % of the villagers used LPG while only few depended on firewood for cooking.	For cooking purpose 86 of 101 i.e., 86% were dependent on LPG, 2 % were dependent on firewood.	Comparable
For bathing purpose majority were dependent on Firewood	For bathing 94% depended on Firewood	
Age at marriage		
18 years above since last 10 yrs.	84.9% had got married at age above 18 years Child marriage during COVID period	Comparable

Qualitative methods	Survey	Inference on comparability
Sanitary latrine		
Toilets were present in all houses i.e., 100% and the village had received Open defecation free certificate as revealed in the FGD Multiple dumping areas around the unused and empty sites, without segregation-Transsect walk	97/101= 96.9% Households had toilets. Open defecation was present in the 3.1 % of the households. Data for types of waste disposal was unavailable due to lack of any segregation	Non comparable
Vector breeding sites		
Cow shed areas had vector breeding sites There were abandoned sites with water logging -potential areas of vector breeding Open garbage collection areas were scattered around the village Two unused open wells	60.7% with cowsheds had vector breeding sites	Partially comparable
Communicable Disease		
No cases were found Only frequent cases of ARI of mild intensity amongst the children as per FGD and matrix ranking score. One case of Dengue was detected one year back and treated successfully	There were 3/101(which is 2%) households where history of treatment of TB /HIV and COVID 19 was found.	Partially Comparable as information on communicable diseases were not openly discussed or revealed during FGD
Non-Communicable Diseases		
DM- 50% cases of Adults Cases of HTN and DM were approximately 25%	DM prevalence was 7/39=17.6% among the adults Combined cases of HTN and DM were about 24.1%	Partially comparable as the prevalence differed. Combined cases of HTN and DM were comparable
Maternal and child Health		
ARI (Children) and Anaemia in mothers were most commonly encountered issues of Mothers and children (under 5 yrs.) respectively Vaccine coverage was 100 %	29.1% were Anaemic in 15-49 yrs. women and most common (40%) illness in children ARI and febrile episodes Vaccine coverage for the 13 under five children included in the survey were all vaccinated till date	Comparable data and similar scoring found through matrix ranking scoring The vaccination coverage data was comparable
Accidents and Injuries		
Road traffic accidents were more common. Domestic injuries were more prevalent amongst older women	Accidents and injuries comprised of 12% of overall morbidities, where 60% cases of RTA were (higher) in males	Partially comparable
Health care utilization		
90 % preferred Government institutions for Delivery and in severe cases only went to District hospitals	79.9% or (almost 80%) families preferred nearby Government health care set up for maternal services	Comparable
Substance abuse		
Alcoholism was rampant in teenage boys especially who had dropped out from school. Alcoholism was common in males who were unemployed	15.5% males were found to abuse one of substances. 66.7% indulged in alcohol among them	Partially Comparable

On the other hand, Table 2 depicts the observations of the FGD session carried out among the local women of the Village wherein

the various facets of their sociocultural issues and behaviours were recorded and themes were conceived.

Table 2: Thematic distribution depicting problems of village based on Focussed group discussion

SUBTHEMES	Findings
Theme 1: Maternal and child health	
Childbearing practices	Male child preference- It existed 20 years back and at present birth of a Healthy baby, irrespective of gender
Exclusive Breast Feeding	In rare instances: MOM (milk of another mother) In regular practice-Breast feeding for 6 months No prelacteal feed given Quotes- Participant (Anganwadi worker) – “We don't give anything before lactation strictly. Even if mothers’ milk is scanty, we encourage other mothers to give the milk but do not introduce any feeds of any kind including water before starting lactation”.
Vaccination	100 % vaccination coverage. They come back from cities to their villages for vaccinating children Quotes: ASHA worker” We inform well in advance about the dates and even children living in cities come back here to get immunized”
Spacing	1) Majority conceive second child within 1-1.5 years of first child. 2) Many want to complete family early to be over with familial responsibilities
Weaning practices	Home cooked food introduced to the child after attainment of age of one year is the preferred norm
MCH service area	90% preferred nearby CHC (government) services for child delivery and serious cases are sent to District Hospitals and Mandya Institute of Medical Sciences
Theme 2: Reproductive and child health	
Age at Marriage	>18 years due to mandatory laws against child marriage
Theme 3: Health care utilization	
Infrastructure and transport services	Preference for Government institutions (Keelara)
Theme 4 : NCD Lifestyle	
	Current trend of women opting for outdoor jobs More men opting for sedentary lifestyle Quotes: Participants-Now times have changed in this village. People are going to garment factory. Ladies were not at all coming out before. They were only cooking and praying at home but nowadays they eat their breakfast and rush toward all different directions to work.
Dietary practices	Junk food like Chips, pani puri taken more than home food
Awareness of common diseases	Awareness of common problems of anemia and thyroid cases detected at pregnancy
Incidence of DM and HTN	Increasing incidence for NCD with over 25 % cases of uncontrolled DM and Hypertension
Theme 5: Substance abuse	
Burden	Among males, 20.7% were abusing psychoactive substances. Women did not reveal
Age at initiation of alcohol	80% high school drop outs start taking alcohol where the High school dropouts age ranges between 15 -18 years Quotes: Participant (Member of sangha)- “Usually those children who are dropouts typically engage in alcoholism and have smoking habits.
Reasons of abuse	Cultural acceptance of western trends like celebrating birthday parties Legalized wine shops were opened in every village Peer pressure

Figure 2 (a, b): Matrix Ranking of distribution of disease of the village(Distribution of pebbles (Black spots) depicting the burden of problems of the village)

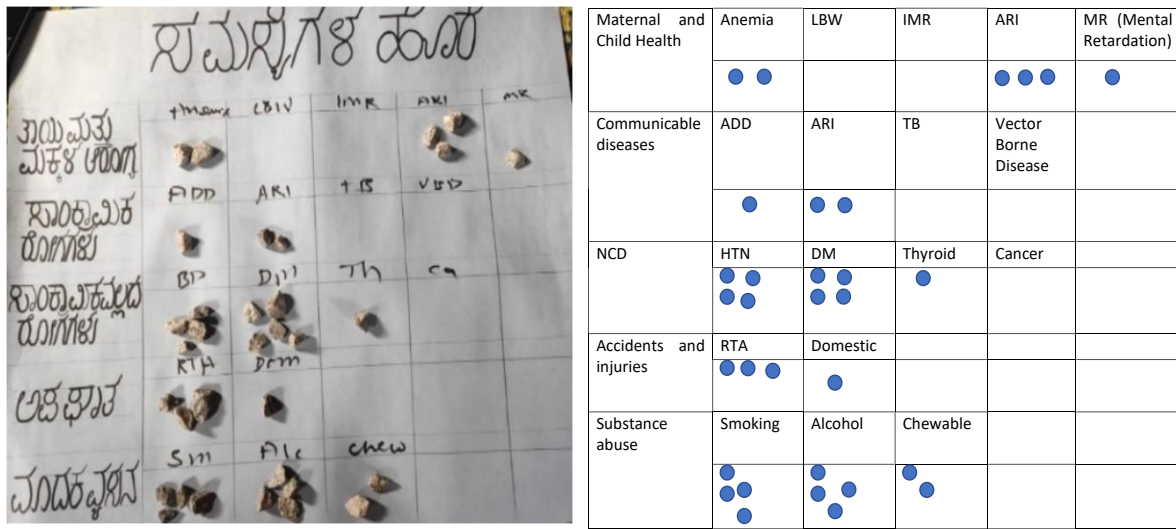


Figure 2b showed that, the villagers felt there was equal abuse of alcohol and Beedi but lesser incidence of persons taking chewable tobacco. Domestic accidents were more common among the geriatric age group and in females. Acute diarrhoeal disease and Acute respiratory illness were the most common ailments among the children. Maternal issue of importance were anaemia and ARI. Among the non-communicable diseases, DM had higher incidence followed by HTN while few women suffered from thyroid disease.

DISCUSSION

Water, Fuel and Sanitation

The results were comparable between the survey and the FGD with regards to water sources. Similar to studies in India (10,11), in this study, majority were dependent on Tap water (70.4%) and Bore wells (24%) for domestic and drinking purposes. In 50% of the houses, cattle sheds were present, and the data showed some comparability between the survey and transect walk. The transect walk identified additional potential breeding sites for vectors, such as unused wells and scattered garbage dumps, which were not captured in the survey. In the survey, it was found that 60% of the animal sheds were potential breeding sites for vectors. Regarding the sanitary latrine data, there was no comparability between the survey and CNA tools. The survey indicated that 93.1% of households used toilets, while 6.9% preferred open defecation. The FGD

participants did not discuss the prevalence of open defecation. However, previous research by Aneesh et al. showed (12) that 7.6% of people in rural areas still preferred open defecation, which was consistent with the present study. This difference in reporting could be attributed to either a desire to present their villages in a positive light or discomfort in discussing the issue.

Morbidities

In terms of infectious diseases, the survey did not capture any cases, but during the FGD, one case of Dengue was discussed. The data showed partial comparability only. The data captured was objective that could have possibly led to missing of information about any cases of Dengue which were detected outside Keelara, as the child lived in a hostel. The highest prevalence of morbidity was diabetes mellitus, and there was significant comparability between the quantitative and qualitative methods for uncontrolled cases of hypertension (HTN). The rise of non-communicable diseases (NCDs) in the villages could be attributed to better diagnostic facilities or rising sedentary lifestyle. The prevalence of NCD was higher among men and these facts were better highlighted with qualitative methods. (13) Among the other ailments that were related to maternal health, anaemia was the most commonly detected symptom as women were seeking treatment. It could possibly be due to better awareness

activities being carried out by the health workers. (14) The results were comparable with regard to prevalence of the morbidities between both the approaches.

Reproductive, Maternal and child Health

In view of mandatory laws against child marriage, the most common age for marriage among the girls was 18 years, and the results were comparable between the survey and FGD. Families were more accommodative of gender differences and preferred healthier babies in contrast to other studies showing higher male gender preference.(15). Spacing of less than two years between the first and second child was the preferred norm in the study population indicating only partial comparability between the qualitative and quantitative research method results. Some of the reasons could be due to the psychological pressure to complete families at an early age, lack of contraception, or limited awareness of the benefits of spacing between children as seen in other studies .(15) The results were comparable with respect to exclusive breastfeeding, weaning, initiation of family pot, and vaccination compliance and coverage, indicating that both qualitative and quantitative methods yielded similar findings.(14,15) However hardly any differences in comparability between the survey and CNAA were found regarding the availability of maternal and child health (MCH) services with regard to better infrastructure and transport facilities. (16)

Substance abuse

The villagers considered substance abuse to be a pressing issue. They believed that the main factor contributing to this problem was the early exposure of teenagers to various psychoactive substances. The findings, however, were only partially comparable. While the focus group discussion (FGD) yielded results similar to other studies, the survey revealed that approximately 20.75% of men were addicted to substances. There was a discrepancy between both approaches possibly due to the fact that none of the women admitted to substance abuse in the survey, likely because of the shame and fear

associated with it for women. The survey indicated a minimal level of addiction due to low response rates from women. On the other hand, men saw substance abuse as a source of pride. However, during the transect walk, multiple secluded spots, as depicted in Image 1, were discovered with empty alcohol bottles, further confirming the potential for substance abuse to become a greater threat to become a reason for addiction among the teenagers in the future. Therefore, while both research methods confirmed the presence of substance abuse, the survey captured addiction in men only. The survey did not reveal any drinking habits among teenage boys and women. Only through the CNAA, the information of alcoholism among teenage boys came to light, indicating that a combination of both qualitative and quantitative research tools, such as FGD and surveys, were needed in the present context to obtain a more comprehensive understanding of substance abuse.(17)

Discussion through the FGD on Issues associated with stigma, shame, or fear yielded data about behaviours and attitudes responsible for multiple areas of health. Conversely, surveys with validated questionnaires were able to obtain answers to such questions for a community setting in a shorter timeframe in a specific and objective manner.

Strengths: The study gives a comprehensive view of a theme and helps in comparing two different types of methods using a new way of measuring. Also it's a novel approach to compare quantitative and qualitative approach methods.

CONCLUSION

Observations were comparable between both the approaches with regard to usage of water sources, presence of vector breeding sites, prevalence of combined cases of Diabetes mellitus and hypertension, maternal health issues, maternal health utilization, vaccination coverage, breastfeeding practices, weaning and initiation of family pot feeding. Results were partially comparable with regard to communicable diseases. However, the results for CNAA techniques and survey greatly

differed with respect to capturing data of open defecation and sanitary latrine usage.

CNAA research tools demonstrated comparability with survey in most of the areas of health concern. It also reduced the time required for conducting research without compromising the quality of results.

LIMITATION

As there are almost no similar studies, there is lack of any standardized measurement method or processes and thus makes it difficult for generalization.

RELEVANCE OF THE STUDY

A novel approach to compare the findings of quantitative and qualitative methods. Feasibility of CNAA tools and techniques to replace the conventional surveys carried out of the 12 variables used for comparison, 7 variables were comparable and 3 were partially comparable

AUTHORS CONTRIBUTION

All authors have contributed equally.

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Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/ AI assisted technologies in the writing process.

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