

Social Disparities And Accessibility Of Sanitation Marketing Factors Among Rural Community Of Myinmu Township: A Cross Sectional Analytical Study

Than Kyaw Soe, Kay Khine Nyein

Meiktila University of Economics, Department of Economics,
Mandalay, Myanmar, PH-95 09 431 534 92
thankyawsoe82@gmail.com

Meiktila University of Economics, Department of Economics,
Meiktila, Myanmar, PH-95 09 431 507 76
k.khine.nyein9@email.com

Abstract: Introduction: Still 68% of the world's population about 5.0 billion people still used basic sanitation service. About 2.3 billion People do not have basic sanitation facilities. Accessibility of sanitation market is important to be sustainable development of sanitation and hygiene behavior in the long run. Objective: To identify the prevalence of sanitation marketing factors among rural community in Myinmu Township and to determine the social disparities influencing on the accessibility of sanitation marketing factors among rural community in Myinmu Township. **Methodology:** This cross-sectional analytical study was conducted in 6 villages of Myinmu Township, Sagaing region, Myanmar. The 402 sample participants were selected by using multistage random sampling. **Result:** In 402 total participants, 366 household leaders (91.04%) were accessible to excellent sanitation marketing index. Multivariate analysis after controlling the confounding factors with backward elimination found that presence of university and higher education student, sanitation attitude, mechanism of sustained ODF, water collecting trips, having own toilet, number of people using on one toilet, access to desludging services, clinical treatment receiving times, and cost for current latrines were associated with the accessibility of sanitation and marketing factors among rural community who lived in Myinmu Township, Sagaing Region, Myanmar. **Conclusions:** This study encourages the ways to improve the accessibility of sanitation marketing factors in Myanmar by identifying the associated social disparity factors.

Keywords: accessibility, rural community, sanitation marketing, social disparities

1. Introduction

In 2015, 39% of the global population about 2.9 billion people used a safely managed sanitation service – defined as use of a toilet or improved latrine, not shared with other households, with a system in place to ensure that excreta are treated or disposed of safely. 27% of the global population about 1.9 billion people used private sanitation facilities connected to sewers from which wastewater was treated. 13% of the global population about 0.9 billion people used toilets or latrines where excreta were disposed of in situ. Still 68% of the world's population about 5.0 billion people used at least a basic sanitation service. About 2.3 billion People still do not have basic sanitation facilities such as toilets or latrines. Of these, 892 million still defecate in the open, for example in street gutters, behind bushes or into open bodies of water.^[1] UNICEF Myanmar together with Ministry of Health and Sports (MoHS) and other partners implemented Community Led Total Sanitation (CLTS) approach in Myanmar since 2011. This approach motivated to people to build up their latrines themselves. CLTS project was implemented in all 84 villages of Myinmu Township from June 2017 to August 2018. Open defecation in all households were reduced into zero and announced as the first ODF Township after verification made by ODF verification team at the end of August 2018. Myinmu has been announced as 100% latrine used township since 1986. As the sanitation business was not developed in there, the unique sanitation situation can't maintain for a long time until reaching high prevalence of OD Township in Sagaing region in 2014 population census. So, it is important to identify the

accessibility of sanitation marketing factors among rural community in Myinmu Township for the sustainable development of good sanitation practices. The overall purpose of this study is to find out the prevalence of the accessibility of sanitation marketing factors among rural community in Myinmu Township by using the preformed questionnaires and then to identify the association between social disparities and accessibility of sanitation marketing factors among that rural people. In addition, this study seeks to examine utilization of sanitation facilities, living conditions and behavior factors associated with accessibility of sanitation marketing factors among rural community in Myinmu Township.

2. Methodology

Study design and participants: A cross-sectional analytical study was conducted to identify the prevalence of accessibility of sanitation marketing factors among rural community of Myinmu Township, Sagaing region, Myanmar and to find out the association between the social disparities influencing on the accessibility of sanitation marketing factors among rural community in Myinmu Township. A preformed structured questionnaire was used to collect data. Prior to the face to face interview, the questionnaires were translated into Myanmar and back translated into English by an independent translator. The multiple logistic regressions, adjusted OR with 95% of Confident Interval and p-value was used to determine the association between accessibility of sanitation marketing factors and social disparities factors. **Literature review:** Sanitation marketing is an approach to

increasing access to household sanitation at scale. It focuses on the development of the sanitation marketplace, increasing demand for sanitation while simultaneously expanding market-based supply of sanitation products and services for low-income households. Strategies are developed to address the 4Ps of the marketing mix - product, place, promotion and price - to connect people to sanitation products and services they want. By using information about what households want to develop affordable, desirable, attractive and easily purchased products, the householder is engaged as a consumer, rather than an aid beneficiary.^[2] Sanitation program can't be succeeding without having any additional sanitation marketing component. The improved latrine quality, continuous development of ODF status and applying the hand washing facilities were associated with sanitation marketing factors. The sustainable development of sanitation can be compared with the sanitation activities focusing on sanitation marketing factors and sanitation program with hygiene promotion intervention alone.^[3] Normally, latrine coverage in rural areas was very far from the national target of 100% and comparatively lower than urban households. The availability of latrines was affected by demand and supply factors of sanitation marketing mix such as income level, health promotion visits by health workers, walking time from local health institutions, distance from health center, price of latrine, quality of sanitation facility products.^[4] Therefore, it is recommended that to promote the accessibility of sanitation marketing factors and special attention be given to households in inaccessible rural areas. Social disparities highly impact on the accessibility of water supply, sanitation and hygiene facilities. Wealth condition such as household income is the statistically significant determinant of householders' access to improved drinking water. Then, education level, family income and location of the householder were the statistically significant factors influencing the use of improved water. The significant factors determining access to improved toilet facilities were education, income (wealth), location and gender.^[5] According to the socio-economic differences, the accessibility for the marketing factors such as price, place, product promotion is changing. **Statistical Analysis:** The raw data of 402 respondents were recorded into MS Excel. The data were inverted into the Stata program version 13.0. The multiple logistic regression adjusted OR with 95% of Confident Interval were used to determine the association between social disparities and accessibility of sanitation marketing factors among that rural people by controlling other related factors. All test statistics were two-sided and a p-value of less than 0.05 was considered as statistically significant. **Ethical consideration:** This study protocol was approved by Meiktila University of Economics Research Proposal Review Committee for human survey research. Informed consent had taken from all participants prior to interview and all information provided by the participants was confidential and was not be shared to anyone apart from the research team.

3. Results

Accessibility of sanitation marketing factors among rural community : Accessibility of sanitation marketing factors among rural community living in Myinmu Township, Sagaing Region, Myanmar were described in table 4.7. In 402 total participants, 358 (89.05%) were accessible to excellent sanitation marketing product index. 44 households

(10.95%) were in low sanitation marketing product index. Accessible to sanitation marketing price factor is worse than product marketing factors. Sanitation marketing price factor was excellent in 279 households (67.91%) and it was low in 32.09% of total respondents. Accessibility of place sanitation marketing factor is the best among four sanitation marketing indices. Excellent sanitation marketing place index was accessible in 393 household heads (97.76%) and only 2.24% have low index. Excellent sanitation marketing promotion index was seen in 82.09% of total participants and only 36 respondents (8.96%) has low index.

Table 1 Accessibility of sanitation marketing factors among rural community

Characteristics	Total (n=402)	
	Number	Percentage
Sanitation Marketing Product Index		
Low (≤ 50)	44	10.95
Excellent (> 50)	358	89.05
Sanitation Marketing Price Index		
Low (≤ 50)	129	32.09
Excellent (> 50)	279	67.91
Sanitation Marketing Place Index		
Low (≤ 50)	9	2.24
Excellent (> 50)	393	97.76
Sanitation Marketing Promotion Index		
Low (≤ 50)	72	17.91
Excellent (> 50)	330	82.09
Sanitation Marketing Index		
Low (≤ 50)	36	8.96
Excellent (> 50)	366	91.04
Mean (S.D.)	55.56	(± 5.47)
Median (Min: Max)	57	(10.5:60)

In total sanitation marketing index, 366 household leaders (91.04%) were accessible to excellent sanitation marketing index. Only 36 participants (8.96%) have low sanitation marketing factors. Lowest accessibility index was 10.5 and highest index number is 60. Average accessibility of sanitation marketing factor score is 55.56 and SD is 5.47. More than 90% of rural community in Myinmu Township were accessible to excellent sanitation marketing factors.

Factors Associated with Accessibility of Sanitation Marketing Factors Among Rural Community (Multivariate Analysis): Multivariate analysis after controlling the confounding factors with backward elimination found that presence of university and higher education student, sanitation attitude, mechanism for sustained ODF, water collecting trips, having own toilet, number of people using on one toilet, having desludging services, self-initiating latrine building, clinical treatment receiving and cost for current latrines were associated factors to have an excellent sanitation marketing factors among rural community who lived in Myinmu Township, Sagaing Region, Myanmar. Table 2 demonstrated that Adjusted Odds Ratio (AOR) of the factors that were associated with sanitation marketing factor accessibility and their 95% CI. The respondents who have university and higher education students were more likely to have excellent sanitation marketing factors when compared with who don't have those students (AOR=7.54, 95% CI=1.89-14.00). Those respondents with perfect sanitation attitude (AOR=5.09, 95% CI=1.85-0.52) were also significantly more likely to have excellent sanitation marketing factors than others.

Table 2. Factors associated with overweight and obesity (Multivariate analysis):

Variable	Total (No.)	Excellent SMI (%)	Crude OR	Adjusted OR	95% CI	p-value
Presence of university and higher education student						0.004
<1	364	91.76	1	1		
≥1	38	84.21	2.09	7.54	1.89 to 29.98	
Sanitation Attitude						0.002
Imperfect attitude (<30)	115	78.26	1	1		
Perfect attitude (Have 30)	287	96.17	6.97	5.09	1.85 to 14.00	
Mechanism for sustained ODF						0.016
Community plan to sustain to ODF	237	86.08	1	1		
No mechanism	165	98.18	8.73	45.59	7.74 to 268.45	
Water collecting trips						<0.005
More than one times per day	317	88.96	1	1		
No need	85	98.82	10.42	71.75	5.67 to 908.52	
Having own toilet						0.010
Share with others	19	63.16	1	1		
Yes	383	92.43	7.12	16.89	1.96 to 145.51	
Number of people using on one toilet						0.004
≤ 5	274	89.05	1	1		
> 5	128	95.31	2.5	10.62	2.11 to 53.51	
Desludging Services						0.008
Not have desludging car services	142	88.85	1	1		
With desludging car	260	95.07	2.42	4.39	1.47 to 13.07	
Latrine building by self-initiating						0.008
Motivation by others	23	60.87	1	1		
Self-initiating	379	92.88	8.38	11.17	1.88 to 66.24	
Clinical treatment receiving times						0.006
<1	305	94.10	1	1		
≥ 1	97	81.44	3.63	3.98	1.48 to 10.67	
Cost for current latrine						0.034
< 100,000	175	88.57	1	1		
≥ 100,000	227	92.95	1.70	3.27	1.09 to 9.78	

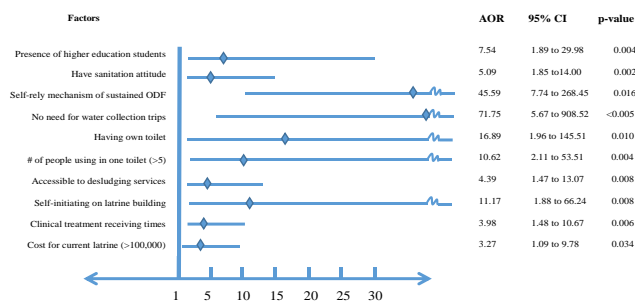


Figure 1 Forest plot diagram for factors associated with accessibility of sanitation marketing factors: multivariate analysis

Households who believed sustained ODF is depending on individual awareness and there is no need for community mechanism (AOR=45.59, 95% CI=7.74 – 268.45) was significantly more likely to get excellent sanitation marketing factors. Those people who don't need the efforts for the trips to collect water were more likely to have excellent sanitation marketing factors than the respondents who need to take water collecting trips (AOR=71.75, 95%CI=5.67-908.52). Household with own toilet had 7.12 times higher to excellent sanitation marketing factor than the households who used toilets by sharing (AOR=16.89, 95%CI=1.96-145.51). Households who used one toilet more than 5 people were more likely to get excellent sanitation marketing factors than the households who used toilet less than 5 people (AOR=10.62, 95%CI=2.11-53.51). People who access to the desludging services in their village were more likely to have excellent sanitation marketing factors than the community without desludging services (AOR=4.39, 95%CI=1.47-13.07). Households who build their latrines by self-initiating sense had more chance to have excellent sanitation marketing factors than households who build their latrines by motivation of other people (AOR=11.17, 95%CI=1.88-66.24). Community who received clinical treatment during a year was more likely to have excellent sanitation marketing factors than other people who don't need to go for clinical treatment within a year (AOR=3.98, 95%CI=1.48-10.67). Moreover, respondents with spending more than 100,000 Kyats for current latrine were more likely to access excellent sanitation marketing factors about 3.27 times than the household who used less than 100,000 Kyats for current latrine (AOR=3.27, 95%CI=1.09-9.78)

DISCUSSION: Over nine of tenth household have excellent sanitation marketing index in rural community of Myinmu Township. High accessibility of sanitation marketing of rural community was occurred on place factors and then followed by product, promotion and price factors respectively. According to sanitation marketing mix factor measurement, this study found that 91.04% of them were in excellent accessibility of sanitation marketing factors. So, the accessibility of sanitation marketing factors of current study was higher than the utilization of sanitation facilities of Southern and South East Asian countries on JMP report 2017. According to this report, only 68% of global population and 77% of Southern and South East Asia countries have basic sanitation services. And 32% of global population and 23% of South and South East Asian countries still have in limited accessibility and not have any sanitation services.^[1] Moreover, the accessibility of sanitation marketing factors and utilization of sanitation facilities were the attributing factors for sanitation related health indicators such as maternal mortality rate, infant mortality rate, diarrhea/dysentery incidence rate, stunting rate, malnutrition rate, etc.

After controlling the confounding factors with backward elimination multivariate analysis, ten social disparity variables were strongly associated with accessibility of sanitation marketing factors among rural community. They were presence of university and higher education students, sanitation attitude, mechanism for sustained ODF, water collection trip, having own toilet, number of people using on one toilet, having desludging services, latrine building by

self-initiating sense, clinical treatment receiving times and cost for current latrines. Families who have university and higher education students had more likely to access the sanitation marketing factors. However, lack of university students at home had less chance to be excellent accessibility of sanitation marketing factors. A lot of studies found out the association of presence of school children and the utility of sanitation facilities.^[6,7] This study contributed for these findings that presence of university students in a home were attributed to be higher sanitation marketing rate. And household with perfect sanitation attitude had 5 times to access the excellent sanitation marketing factors than household with imperfect sanitation attitude. That might also be relating with moral value on the good things and optimistic mood of individuals. One Zimbabwe study found that family member's perception and attitude of sanitation effect on the sanitation behavior of their children.^[8] The households who believed that ODF status have to be maintained by individuals and it is not responsibilities of village administrators were more chance to have excellent sanitation marketing factor accessibility than the households who depend on village leader's management for ODF sustainability. These empowered households had 46 times opportunity to access the excellent sanitation marketing factors. Previous literature documented that expecting the subsidies and enforcing the community for latrine building are the barriers for sustainability of ODF. And it can intend to be low utilization of sanitation facilities.^[9] Type of water source and affordability directly related with the accessibility of sanitation facilities at the rural community^[10]. Nigerian study showed that higher accessibility of water supply can lead to the increased utility of sanitation facilities, this study also found that household who don't need to take trips for water had about 73 times higher than families with need to take trip for water. This study supported to the above study about the association of affordability of water supply can attribute to the higher accessibility of sanitation marketing factors. If the families had own toilet, they were 17 times more likely to be excellent accessibility of sanitation marketing factors than the families who shared toilet with others. The household who used one toilet more than 5 people have 11 times to get excellent accessibility of sanitation marketing factors. Moreover, households with desludging services had 4 times higher to access the great sanitation marketing factors than household without desludging services. These findings contributed to the association of latrine accessibility, quality latrine facilities and sanitation services and utilization of latrines by the community these are identified on previous studies.^[11,12] Household who build up their latrines with their own consciousness were more likely to be excellent accessibility of sanitation marketing factors about 11 times than the households who constructed their latrines by the motivation of others. Accessibility of sanitation marketing was associated with households' sanitation consciousness differences in this study which is similar to the study conducted in Eastern Nepal^[13] and North Ethiopia^[6]. Household who received medical treatment at least one time per year with were also 4 times more chance to get high accessibility on sanitation marketing factors than households who have never received clinical treatment during a year. One Vietnam study identified that knowledge of health effect of poor sanitation correlate with the willingness to pay for sanitation.^[14] The people who received medical treatment

understand more the value of health and benefits of sanitation. And health center sometimes give health education during medical care. That might to get more accessibility of sanitation facilities than other people. And the cost for current latrine is the associated factor for accessibility of sanitation marketing factors. The families who used more than 100000 Kyats for current latrine has more accessibility on sanitation marketing mix factors than the households who spent less than 100000 Kyats for existing toilet. This finding approved the previous finding of type of latrine construction material impact on the utilization of latrine.^[6]

4. Conclusion

Given the fact that presence of university and higher education student is associated with high accessibility of sanitation marketing factors among rural community. So, government should promote to increase the high school completion rate and also University attendance rate. This promotion of education completion rate can be benefit not only to the human resource development of the nation but also for the sanitation status improvement. As this study result showed that perfect attitude on sanitation is associated with sanitation marketing factor accessibility, future sanitation health education program should focus on the sanitation attitude changes instead of knowledge sharing sessions. By mean of excellent sanitation marketing factors can be found mainly on the households who have high ownership sense civic responsibility. Government should promote the civic responsibility consciousness of the people and community empowerment for sanitation programs. Water supply programs should be elaborated to be higher affordability and accessibility of the community as the study result found that water collection times are associated with the accessibility of sanitation facilities. Sanitation promotion program of related departments should emphasize to increase the using own toilet than using the toilet by sharing others. And sanitation marketing programs should be developed on the high latrine utilization rate areas. Health education, health talks and sharing health knowledge sessions should be done during conducting the medical treatment for the community by health personals as this study found that household who attend for clinical treatment has more chance to be excellent accessible for sanitation marketing factors. Government should encourage to the community to build up the good quality toilet by cooperating with loan or microcredit program for increasing the affordability of high quality smart toilet in rural area.

LIMITATION OF THE STUDY: A number of limitations was found in this study because of its cross-sectional design and assessed the accessibility of sanitation marketing factors at a single time point. In fact, it is impossible to evaluate the accessibility of sanitation marketing factors among rural community over time and the extent of generalizability is limited only to those similar people. As it is the cross-sectional nature of the study, it can't say the cause and effect relationships as strong evidence between main interest factor and accessibility of sanitation marketing factors. This study was totally dependent on the participants' self-report and memory recalls while assessing on social determinants, utilization of sanitation facilities, wealth and assets factors; therefore recall bias could not be excluded. Despite the limitation, this finding was useful for public administration

policy makers as a baseline to develop appropriate strategies on the development of sanitation sector for public health intervention.

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Author Profile



Author 1 graduated the Bachelor of Community Health (B.Comm;H) degree from University of Community Health, Magway, Myanmar in 2005, MPH (International Health) degree from Khon Kaen University, Khon Kaen, Thailand in 2017 and MPA degree from Meiktila University of Economics, Mandalay, Myanmar in 2019. During 2005-2008, he served as Tutor in Epidemiology Department, University of Community Health, Magway, Myanmar. Then, worked as public health professional in World Health Organization (WHO) and United Nations Children’s Fund (UNICEF) from 2009 to present.