

## **Proper Use of Latrine and Handwashing Facilities among Primary School Students. A Case of Peripheral Schools in Temeke District**

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### **ABSTRACT**

**Background:** Each year two million students die from diarrheal diseases, making it the second most serious killer of students under the age of five (WHO, 1998). The use of sanitation facilities is known to interrupt the transmission of faeco oral related disease. This study assessed proper use of latrine and handwashing facilities among primary school students as the potential behavior aspect for transmission of microbes.

**Methods:** A descriptive cross sectional study was conducted involving 307 students and 12 Teachers who are heads of health clubs, making a total of 319 participants. The study was conducted at Mbagala charambe which is found in Temeke Municipal at Mbagala ward in Dar es Salaam region which involved primary schools which were Nzasa, Chemchem, kilamba, St Mary's international, Rangi tatu and charambe primary. Observation method, interview and questionnaire methods of data collection were employed. All the data were analyzed by the use of STATA to obtain proportional and percentages whereby they were presented in terms of table, graph and charts.

**Results:** Most of the participants 66% were female and 34 % were male but also almost 51.5% of the schools had soap for hand washing in their latrine. Inhibitors which makes the proper use of latrine being infringe at schools were lack effective water supply as the main inhibitor followed by lack of knowledge and broken of the facilities. No school had fixed HWF.

**Conclusion:** The study shows the need for further improvement of the existing sanitation programs like CLTS and FOLLOW – UP MANDONA to equip with the behavior aspect which will have a potential change on the proper use of latrines and HWF hence will assist most into affecting attitudes hence attain the behavior change maturity. But to have a scaling up U plan for schools which will address various issues such as the crosscutting issue of menstrual hygiene. So it is only the proper use of the latrine which will make student abstain from diarrheagenic or ill health cycle.

**KEYWORDS:** Latrine, Handwashing facility, Ill-health, SWASH, and Optimal health

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### **ARTICLE DETAILS**

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### **1.0 BACKGROUND**

The use of sanitation facilities is known to interrupt the transmission of faecal oral related disease .In Africa and Southeast Asia 62% and 31% respectively, of all deaths are caused by infectious disease involving fecal oral route, whereby fecal are potentially transmitted from an infected person to a healthy one by various routes. The burden of inadequate sanitation often falls disproportionately on the most

vulnerable people living in developing countries, such as children (6, 20). Each year two million students die from diarrheal diseases, making it the second most serious killer of students under the age of five (2, 5, 22).

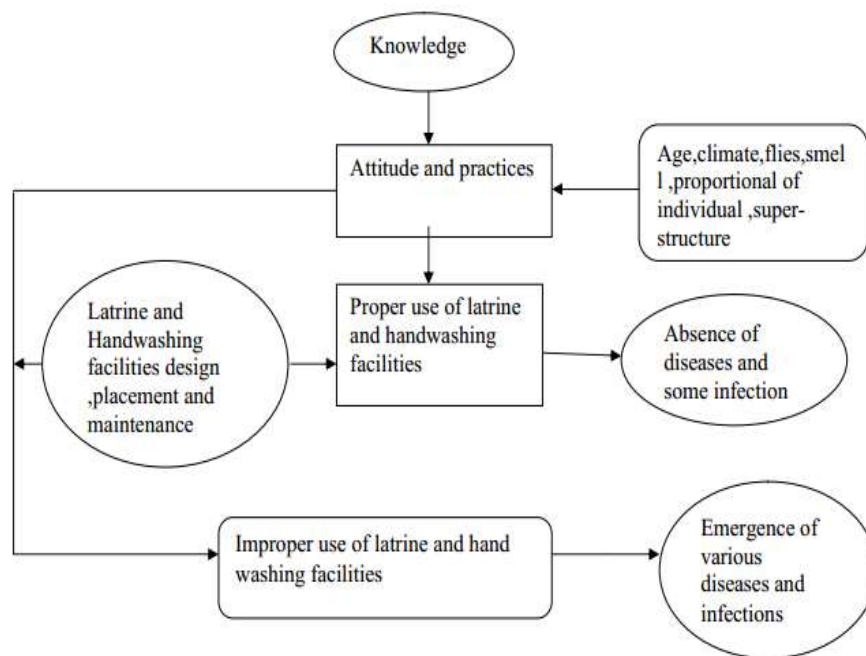
Agbo (2) argue that toilet facilities ought to be present in schools to promote hygiene and meet the physical and emotional needs of staff and students. This was advocate by

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Pugh,(20) who pointed that improved sanitation and hand washing facilities have a particularly positive impact on the education opportunities of young girls, who are disproportionately affected by lack of privacy and cleanliness during their period. Health improvement comes from the proper use of sanitation facilities, not simply because of their merely physical presence.

Handwashing facilities and latrines are usually in moist environment hence emergence of the microbes such as *Giardia lamblia*, and *Streptococcus pneumonia* which are both pathogens transmitted by the fecal-oral route **Figure 1**. Six out of ten schools (63.8 per cent) in Tanzania had handwashing facilities (19). Also the improper storage, maintenance, placement and usage makes contamination to the hands ultimately, transferring fecal particles from one host to another

possible. Agbo (3) on his study conducted in Nigeria secondary school he observe some of school which lack or were characterized with inadequate toilet facility thus he pointed on the necessity of having a toilet in school with facilities as the fact to refrain from diseases .The study on hand washing sanitation and hygiene done in Dar es salaam Tandika (18) was limited in Tandika and didn't capture on tippy tap placing and maintenance. The problem of inadequate sanitation is important for school-aged students, who are most vulnerable this mark for the seriousness of the problem when it comes to primary school since most are the youngest population. So the study is just stipulated into a unique category since its consider the primary schools as case study in Temeke-charambe as it assessed the availability and the maintenance as well as the proper use of the handwashing facilities and latrine.



**Figure 1: Conceptual framework: Source: Author design**

## 2.0 METHODS

### 2.1 Study area.

The study was conducted at Mbagala charambe which is found in Temeke Municipal at Mbagala ward in Dar es Salaam region. Charambe is an administrative ward in the Temeke district of the Dar es Salaam Region of Tanzania. According to the 2012 census, the ward has a total population of 83,401. The area is surrounded by some of the areas like Mtoni-Mtongani, yombo Temeke ,kongowe, Rangitatu and Mbande. Primary schools were the most potential area of concentration at a particular area of Mbagala –charambe ward thus Nzasa, Chemchem, kilamba ,St Mary's international, Rangi tatu and charambe primary school were areas of concentration.

### 2.2 Study design and setting.

A cross-sectional descriptive study was conducted, which involved both qualitative and quantitative approaches of data collection from the selected primary schools in Temeke Municipality. The schools selected were Nzasa, Chemchem, kilamba, st Mary's international, Rangi tatu and charambe primary schools whereby only st Mary's international was a boarding school. The study was conducted on April to July 2020. The design paved the way to assess exposure factor and the associated effects among children, namely neuro-development effect effectively since is very flexible, timely and economic (17) as the research was scheduled under a period.

### 2.3 Participants

The study enrolled 307 student and 12 teachers who are the in charge of the school health and sanitation as participants who

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were sampled from the primary schools of choice. At each school only standard five, six and seven were sampled to participate in the study. It does incorporate both Male and female students, their teaching staffs moreover their surroundings were assessed to observe latrines condition which was a crucial premise. Sampling was done according to Kothar, (17) for the finite population whereby the the proportional used was 50% , accepted error of 0.05 and standard value is 1.96 which lead to the sample of size 307 participant. The study was directed to schools which are primary in particular found in peripheral areas of Dar es saalam like Mbagala charambe which formed some sample units, schools were purposively chosen according to their important information they bear since some were in the WASH project like Nzasa and Charambe and Chemchem but some were not like Kiramba Primary, but also it included St Mary school as the unique primary school which is boarding. But also class to participate in the study were chosen purposively thus standard five, standard six, standard seven were chosen as they are aware of many things at schools and most are matured. But probability proportional to size was used to obtain the number of participants from the six schools which were selected thus the finite number of the sample units of the class was used to obtain the sample according to the size of the school and class thus Rangi tatu primary school 63, Kilamba primary school had 62, St Mary's international had 57, Charambe had 49, Chemchem had 41, Nzasa primary school had 35 participants. .

The study employed both probability and non-probability sampling methods. Probability sampling was employed which use the Systematic sampling methods whereby it samples students at regular intervals thus in this study every tenth student in the class list was provided with questionnaire. The simple random sampling method was also used relying on random numbers to select samples in some of the class which had a lot of streams like at Chemchem. The non-probability sampling employed Quota Control Sampling which is in category participants were selected basing on created quotas whereby in this study participant were selected according to their age group, class level, disabled students and student availability/ attendance at a particular school.

Data was collected using primary data collection whereby methods like questionnaires using structured questions to the student and staffs, relying to the data of interest also unstructured interviews was used by interviewing randomly selected sample of preferably standard five, six and seven in schools and staff using unstructured questions also data were collected quantitatively by using field observation checklist which encompasses observation on the studying area whereby Pupils use of toilet facilities was observed on the corresponding six schools visited during the study. Observations of toilet use always took place during the 30-minute morning break, between 11:00 and 11:30 AM across all schools, and always took place after the observation of toilet facilities.

### 2.4 Inclusion and exclusion criteria

#### 2.4.1 Inclusion criteria

- A primary school student who studies in Dar es salaam peripheral primary schools
- A primary student who is in Standard five, six and seven at a particular primary.
- A student who has been to a particular school for more than three years.
- A health and sanitation teacher who has been in position for more than one year

#### 2.4.2 Exclusion criteria.

- A student who doesn't know how to read and write
- A student with brain impaired or mentally retarded.

### 2.5 Variables

The outcome variable the Proper use of latrine and handwashing facilities which had several independent variables which are, availability of latrine and hand washing (tippy tap) facilities, Presence of soap in the latrine as well as partition and Privacy in the latrine, and Disability consideration whereby they were assed basing on their presence or absence at the premises. Source of water for Handwashing whether is rain water or tap water or other sources. Placement of the hand washing facilities whether it is near the hole, outside the hole or haphazardly. General motivation to proper use of the latrine which was assessed by whether they clean each day with a roster, leaders to inspect, to fix a routine timetable. Awareness on the proper use of latrine which was assessed basing on Schedules of cleaning the latrine and the cleanness of it. Ways used to ensure the facilities in the latrine are clean was assessed by teaching in class, to ensure water supply, they do spray Inhibitors which intervene on the proper use of the latrine.

### 2.6 Data analysis

The study was a descriptive one hence most of the analysis were basically on it. Data were collected or assembled and arranged in a chronological sequence and checked visually prior to the process of being entered to excel sheath and shifted to STATA software for further statistical analysis such as mean, mode, and standard deviations. After the completion of the task of encoding the data Excel and shift them to the to the STATA there follows the analysis processes, thus data were analyzed and presented in a frequency, percentage , and in graphical way as well as in chart way . After the Analysis process further interpretation process of the data was done. Descriptive analysis was done for demographic characteristics and other variables by the use of STATA to show the frequency and percentage of variables measured.

## 3.0 RESULTS

### 3.1 Social demographic data

Most of participants were female school 66% where by 34% were Male **Table 1.** Rangi tatu primary school had most of the participants 20.4% followed by Kilamba primary school with

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20.1%, St Mary's international 18.6%, charambe 16.0%, Chemchem 13.4% and the least one was Nzasa primary school with 11.5% participants.

**Table 1: Social demographical characteristics of the students**

Variable	Categories	Number(n)	Percentage (%)
Age	9 – 12 years	182	58
	13 – 16 years	94	32
	16 – 20 years	31	10
Sex.	Female	203	66
	Male	104	34

### 3.2 Availability, placement of latrine and hand washing facilities.

#### 3.2.1 Availability of latrine in schools.

All the schools had latrine through the number of students was not equivalent to the latrine holes available in such a way that it is contrary to the Tanzania established standards for school which is for Girls 1:50 and Boys 1:40. Thus Nzasa primary school the ratio was 1:120 for Boys and 1:231 for Girls, Chemchem primary school 1:94 for Boys and 1:125 for Girls, St Mary's international school 1:30 for Boys and 1:45, Charambe primary school 1:180 for Boys and 1:110 for Girls, Kilamba primary school 1:54 for girls and 1:60 for boys and Rangitatu primary school 1:130 for boys and 1:120 for girls.

#### 3.2.2 Hand washing facilities in school

Most of the schools had no fixed hand washing facilities this was pointed due to negligence of the students and lack of responsibility. But some were found with temporary HWF such as bucket and tin such as Kilamba and St Mary's international. For the schools with temporary HWF 74.1% were found functioning and 23% not functional.

#### 3.2.3: Presence of soap in the latrine as well as partition.

Almost 51.5% of the participants said their school have soap for hand washing in their latrine, 47% of the participants said that their latrine had no any kind soap for hand washing and 1.5% of the participants they admitted that sometimes it is in place but due behavior of the student some do steal them and hide them, for private use.

#### 3.2.4: Source of water for Handwashing.

Tap water was pointed to be the common source of water by 97% of the participants, 2.2 % said rain water which is harvested and stored in tank. And the other 0.4% said it is from various sources such as dug well and rain water.

#### 3.2.5: Placement of the hand washing facilities.

Students did advocate that the placement of the hand washing facilities was done outside the latrine by 3.5% and other 37.5% pointed that placement is done inside around the latrine but for those who pointed the placement is inside the latrine most of them said that hand washing facilities is placed nearer the latrine hole by 59.1% of the participant. But with the

observation we found most of the Hand washing facilities were improperly placed. Figure 2.



**Figure 2: Placement of the facility**

### 3.4 Privacy in the latrine and Disability consideration.

Since most of latrine were constructed by UNICEF program hence they were constructed well to insure ventilation and privacy, 90.7 % of the students did advocate that their latrine are well constructed to the insurance of the privacy and windows with enough ventilation and 8.1% did advocate that their latrine are not guaranteed with privacy and ventilation while 0.4% of the participant said sometimes they do ensure but the facilities have been destroyed. On the other side 72.6% of the participants did advocate that their latrine have been constructed with the consideration of the special disability consideration in the latrine, 26.1% did say that there is no any consideration of such a kind and 5% of them portrayed that there were present but have been destroyed by the incorrigible students.

### 3.5 The general motivation to proper use of the latrine.

Students were asked if at all the latrine and its facilities does promote the proper use of it 72.9% of the participants said that they promote, 22.2% of the participants said that they don't promote, 4.9% of them said just sometime, this implies that sometimes some intervening facts to the proper use are made well thus making them usefully but some of the times they are just making the obstruction of proper use possible. These results were a bit contrary to the observation checklist data which showed that most of the latrine do not favor the proper use of them with the exception of the St Mary's international school and Kilamba primary school.

#### 3.5.1 Maintenance of the latrine facilities.

The results does depict the positive skewness of 1.869 which indicates that the maintenance of the hand washing facilities is being done effectively. The graph also does shows small protuberance to the other negative skewness showing that there are some extent whereby the maintenance of the latrine facility is not well made. With the interview made to some of them teaching staff and some students most of them said that due to the overpopulation of the schools its self this makes the maintenance to be difficult and most facilities are destroyed and some with feces smeared on them.

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### 3.6 Proper use of latrine and hand washing facilities.

#### 3.6.1. Awareness On The Proper Use Of Latrine

On this category our data depict the negative skewness which does indicate that students or participant's number who are not aware on the proper use of latrine and handwashing facilities is huge. More over the indication of having a range of 1 does imply that there is the large number of students who are not aware and those aware hence they are in such a way as proportional or close to each other this is the bad indication which shows that no any education provided to the students thus students owns efforts make them aware. This was contrary to the interview results which did show that most of the students are aware on the proper use of the latrine and its facilities but ignorance is what is dominate their mind as well as negligence.

#### 3.6.2 Schedules of cleaning the latrine and the cleanness of it.

To the surveyed school most of the participants 35.6% said that they do clean their latrine only once per day thus only in the morning time, the other 15.2% said thrice which thus morning ,afternoon after break and evening when they do depart to home.13% of the participants said many times that to the time when they fill it is dirty they clean the latrine, 11.9% said twice which they imply that morning time and the time when they depart to their residence ,2.6 said fifth they advocate so because they have a schedule which makes the cleanness to be conducted fifth times a day , 0.4 % said fourth .But the observation checklist did show some contrary result from the data obtained above that it was seen that most of the school students are not responsible for the cleanness since they are said not to clean them well and they do destroy some facilities so they have employed some people to clean , this was mostly seen at st Mary's international primary school ,kilamba and Rangitatu primary school. To the other schools students do clean but in collaboration with the other employed workers.

Through latrine were cleaned but 13.0% of the participants did advocate that their latrine do bear faeces around it area mostly near the hole place, 85.9% of the participants advocate that their latrine have no any faeces seen around it. But on the real fact with the aid of the observation checklist most of the latrine especially those with highly population of students in relation to the latrine hole number they were found to be with faeces around. Figure 3.



Figure 3: Presence of Faeces Around The Latrine At Chemchem Primary

#### 3.6.3 Ways used to ensure the facilities in the latrine are clean.

The participants result does shows that the most way used for the ensure of cleanness is to clean each day through there are some other minor ways provoked by them like , leaders to inspect each time and assign people wherever they find the latrine is dirty, teacher to ensure the supply of water is effective so as to make cleanness possible, leaders to fix a routine for the cleanness of the latrine and it facilities , being taught in the class, and spraying some chemicals each day. This was similar to the observation results which reveal that most of the schools they are only using routines cleanness way as to ensure cleanness. Figure 4



Figure 4: Promotion Of The Proper Latrine Use .

#### 3.6.4 Inhibitors which intervene on the proper use of the latrine

Inhibitors which make the proper use of latrine being infringe at their schools in particular which was advocated by the students was the lack effective water supply as the main inhibitor followed by lack of knowledge and broken of the facilities. Others were dirtiness of the latrine and smell which both hinder the proper use of the latrine. On the other side of the coin while conducting an observation most of the school surveyed were found to lack some hand washing facilities and some facilities were broken and to some school like Chemchem dirtiness of the latrine and bad odor were seen to be inhibitor towards proper latrine use of latrine. Figure 5

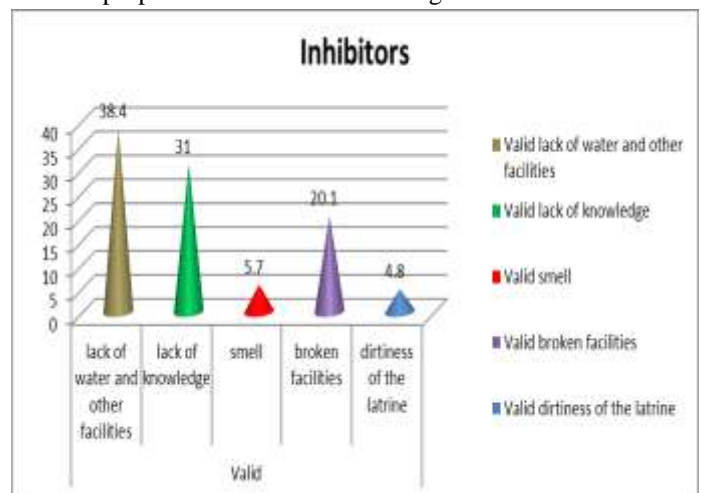


Figure 5: inhibitors which infringe proper latrine use

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### Assessment of perception, intervention and enforcement on proper use of latrine and hand washing facilities.

#### 3.7: How the teacher and other staff speak on the proper use of the latrine.

127 of the students which is equivalent to 49.6% said that their teacher and staffs do tell them and insist on making the latrine clean always by the proper use of it. And 108 of the students equivalent to 42.2% of the students said that their teacher and staffs do tell them to maintain the latrine and its facilities so that they overcome infections. 17 of the students equivalent to 6.6% said that they are only told to use water while attending the latrine and 4 students equivalent to 1.6% said that nothing is being said by their teaching staff to make the proper use of the latrine ensured. When their teaching staffs were interviewed they admitted that they do tell them to maintain them, using them properly and making them clean so only the student are neglecting, some are incorrigible and some just take the speeches for granted and few do understand.

#### 3.8; Inclusion of the hygienic study in the syllabus and staff enforcement.

The positive skewness was depicted from the results which do illustrate the inclusion of the hygienic study to the students at the higher percent. Through the results data shows the minor protrude of the negative skew which is the indication of the minor students who advocate that the hygienic study is not included in the syllabus. But when the researcher went into observing the syllabus he found that there is inclusion of health related studies from standard two to seven. On the other side 89.6 % of the students advocate that their teaching staff do enforce on the hygienic use of the latrine, 4.4% said they are not doing and 4.9% said they do but sometimes they forget their responsibility.

#### 3.9 Enforcement used to ensure cleanness in the latrine

Students were asked on the way used to enforce them to do cleaning 37% of them said that they are only being taught in the class, 25.2% they said that their teachers do teach them on various aspects regarding the proper way of using the latrine and also they do demonstrated on how to make the latrine clean and to properly use it. 11.9% of them said that they are only having a schedule which oblige them to clean the latrine on the routine way thus each student participate, whereas 5.2% of them said that teacher do use sticks to make them use the latrine properly and clean them always but 1.9% said they are only told to fill water in the drum but there are people for cleaning the latrine. But when we interviewed most of the students and discuss with them most of them advocate that their teachers do use flogging as the way to make them work and use properly the latrine which does include cleaning it.

## 4.0 DISCUSSION

The result indicate that female participated more than the male thus 66% of female and male 34%, this is due to the negligence and dodging school of the male which was common observed

to the male during the survey also the results shows that students from St Mary's international school participated more, since they were easily accessed as the school is boarding. These results are quite different with other studies which were conducted in various areas like bajar in India (4) whereby the gender distribution of respondents is almost equal with slight higher percentage of male children. It was said that female students do spend much time at home places fetching water and doing other domestic works that why they were few at school and participated in low percentage in India. This shows that there is the need to ensure all the school children attend school so that they can be in touched with various health interventions.

#### 4.1 Assessment of availability and placement of latrine and hand washing facilities.

The result revealed that 99.3% of the participant advocate on the presence of the latrine at their place or schools which is the good indication that people have now seen the importance of having a functional latrine in public places. With the other study done in FATA and bajar (4) according to the data collected, 74 % of assessed students said that there is no latrine at their place and only 26% of the students say that there is toilet facility at their school, this is contrary to the result which was obtained by the researcher at the field which indicate the increased awareness on the use of the latrine facilities among the community thus increased latrine availability moreover the program conducted by UNICEF of building the latrine in public areas like schools has also contributed to the currently increase in latrine availability. On the other results obtained in India at township of Myanmar (20) 85% of the individuals had latrine at their home this was somehow similar to our result but it was done to the other field area.

But also the results indicated that number of the latrine holes available is not proportion to the number of the students available at the particular schools, as it is recommended by the WHO as well as the minister of health and social welfare that a number of 25 individuals have to access one latrine hole (14). So the huge population at those schools surveyed tantamount for the usual dirtiness of the latrine and it surrounding thus discourage most of the individual to use them.

The results showed that 61% of students advocate that the hand washing facilities were not present, this was due to schools lacking a fence which can make them handle the facilities within the compound. From the survey study done in bajar (4) which portrays that 75% of the children interviewed said that there is no proper hand washing facility in their schools more over the other study done in Cambodia (15) shows that 83.3% respondents did not have fixed hand-washing places in their latrine at homes, this is seen to be the problem in many areas of consideration and it can be due to the lack of awareness of the importance of the facilities due to the fact that the problem is even seen an observed at homes and in public area also this can be caused by negligence since people do have knowledge but they haven't fixed the facilities.

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The result indicates that most of the handwashing facilities found were not functioning well and some indicate that they function. This finding is different from the actual observation as there was no facility found at the area and still students said they function which is not real. In Unicef report (20) for Tanzania sanitations in schools it shows that 84% of the Schools with no functional hand washing facilities so this problem is up to the current still is present.

Results indicate the main source of water for latrine use being tap water .The study done in Cambodia portrays that water for hand-washing (56%) is from improved water sources which is the tap (15).Since the availability of water in majority of the school might have implications for hygiene practices of children in these schools and this will directly affect the sanitation as well, so relying on the tap water for cleanness in school does tantamount for the dirtiness of our latrine since tap water is always running out for some times especially during summer in most of the are of the study.

Results indicate that most of the students said that placement of the hand washing facilities is done nearer the latrine through some said it is done outside the latrine. As the guideline used for C.L.T.S program (17) which did portray that the tippy tap should be placed just nearby the latrine and there should be a bucket and tin with the effective water supply inside the latrine which was some how the same with most of the schools surveyed that the bucket were found inside and the tippy tap was not seen through the drum had no water supply. Through there is the research which pave the way to the program which was done in Tanzania (17) which does point on the placement of the tippy tap nearer the latrine but other facilities as bucket which should be inside but away from the hole ,the initiated program called MTUMBA approach which obviously triggered demand for sanitation products such as sanplats and tippy tap (vibuyu chirizi).Most of the schools surveyed it was found that the buckets and tin in the latrine are placed inside but they were not properly kept as some were just at the hole, some were found down the floor .some were found left empty just lying on the slab. Actually this was due to the fact that student are lazy and disminders.

The findings indicate most of the participants advocating their place to bear soap. In the observation checklist only staff latrine were found with a bar soap thus student's latrine and some of the rest staff latrine had neither a bar soap nor a liquid soap. This results show that staff they are not aware of the proper soap for handwashing as it is recommended that liquid soap is of much consideration to abstain from contaminations. As from the research done in Mtwara on factors affecting the utilizations of improved pit latrine (IPL) did illustrate that the absence of soap was the limiting to proper use of latrine. Also the other study done in Colombia on handwashing did point out that only 33.6% of the sample reported have a soap in their latrine and wash hands with soap and clean water after using the toilet. So soap is marked to be absent in most premises this shows on how attitude and practice to proper use is affected by such a factor.

The findings showed 96.3% of participants advocated on presence of partition to the latrine, 3.3% of them said that their latrine do not bear any partition in accordance to sex .The other studies done in Tanzania ,Dodoma in particular on WASH in related to enteric diseases (11) did point out that all the schools surveyed had partition through the latrine were poor .Having the same results on both studies is the indication that the partition is considered in public school latrines.

On privacy the result indicates that 90.7 % of students said that their latrines are well constructed to ensure privacy and 8.1% reported that their latrines are not guaranteed with privacy. On observation most of the latrine observed were well constructed in such a way that they ensure ventilation and privacy to users . These results are similar to those of Andualem (1), which did portrays on latrine utilization and concluded that in most places of East Gojjan Zone privacy is guaranteed and maintained especially in public latrine such as those present in schools . This points out that privacy is not the reason for not using the latrine well since it seemed to be guaranteed.

Participatory observation on latrine suitability was done to see if latrines are user friendly especially to the disabled students and results obtained indicates that 58.9% of the participants reported that their latrine have been constructed with the special disability consideration,21.9% did said that there is no any consideration of such a kind. On observation most latrines in school like Chemchem and Kilamba primary Schools which were constructed under a UNICEF, WASH program, had special considerations on disabled students.. These results correlate to the results of the study done in Erbil city by (10) which found that most of the school latrine had disability consideration. Hand washing facilities are part of sanitary facilities and are very useful to ensure that latrine users wash hands after every toilet visit. This is very important in reducing feecal oral diseases and where they are not provided or maintained the latrine users are prone to acquiring feecal oral diseases. Results obtained in assessing if the hand washing facilities were properly maintained in a study area indicate that 76.3% of participants said that the facilities are maintained well,13.3% said that the facilities are not well maintained 8.1% said that sometimes the facilities are maintained but due to some intervening factors they are destroyed again. These results are supported by the interview results obtained from teaching staff and some students, where most of them said that due to the overpopulation of the schools the maintenance of facilities is difficult and most facilities were found destroyed and some with faeces smeared on them .Also this has been pointed out in as study done in primary schools found in Kenya by (13,14) where the results pointed out over population as the problem for the effective maintenance of the latrine .Actual poor maintenance which does include general repairing and cleanness does discourage one to use the latrine properly and hence predispose to health problem likely to be caused by poor hand washing hygiene.

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### 4.2 To Assess Awareness on Proper Use of Latrine and Handwashing Facilities.

The result showed that 51.9% of the participants are not aware on the proper use of the latrine they just took things for granted and as a custom. This was contrary to the interview results which did show that most of the students are aware on the proper use of the latrine and its facilities but ignorance is what is dominant in their mind as well as negligence. According to the study done in selected schools at Vhembe district at Limpopo in South Africa by Jerry E. et al (13) reveal knowledge about waterborne diseases was relatively high but knowledge on transmission routes was inadequate. This resulted in poor use of handwashing facilities, on his study. Other study pointed that knowledge on the proper use of latrine and washing facilities is huge to students compared to other community members in the society. This is due to the fact that students are more exposed to hygiene information in the school environment, their presence positively favored the persuasion of latrine utilization. As Alyssa (4) pointed in Ethiopian schools approximately 52% of students were classified as having adequate knowledge on hygiene. So we can therefore say that students are aware on the proper latrine use since they do access the information in class but there are other factors which make them not to use properly.

Results showed most of the participants said that they do clean their latrine only once per day this implies in the morning time by 35.6%. But with observation most do clean in the morning this is the same as the scheduled for cleanliness in Ethiopia schools as Alyssa (4) pointed. This is actually not effective through it is seen in many schools since during the break time it is when the latrine are maximum utilized so cleaning them on each break can be a sound way making them neat.

85.9% of the participants advocate that the latrine are clean in such a way that there is no any faeces seen around it. But on the real fact with the aid of the observation checklist most of the latrine especially those with highly population of students in relation to the latrine hole number they were found to be with feces around every time through they were cleaned each morning. As it was also pointed by (7,13) that most of the public latrine do bear feces due to over population and poor maintenance. So this is still a big problem to the current through MTUMBA approach and CLTS are in work. Maybe school should reduce the enrollment of student beyond its capacity to handle them cause this contribute to the poor and improper use of the latrine.

The findings showed the high percentage of participant who said they are only told to clean latrine each day the facilities by their teaching staffs. As it is known that the selection of the sound method does determine for the knowledge hence opting of that determine the awareness of the staffs on the general cycle of enteric disease or latrine related hazard but low to students since they do like to be reminded. On the other study by (13,8,9) reveal knowledge about waterborne diseases was relatively high but knowledge on transmission routes was

inadequate to the student. This implies that student knows that urinating outside the hole is wrong but the health impacts caused by that and thus understanding of the route is very low to most of the student this is reflected to the option of the way to ensure cleanliness.

From the result of inhibitors which intervene on the proper use of the latrine, most participants said lack of water and other facilities is the main contributor to the improper use of the latrine, whereas others said lack of proper knowledge on the use of the latrine is the infringing factor, presence of the broken facilities, bad smell and dirtiness of the latrine. From the study done in Darfur Sudan that among the problems preventing regular latrine use the presence of flies, lack of superstructure and unpleasant smell were indicated to be of more significance than other problems explored. This is particularly the case in age groups from 6 to 15 years. Male and female populations are equally concerned with these problems (1,22,12). So the inhibitors prove to be the same as referred to the other studies.

### 4.3 Evaluation on perception, intervention and enforcement on proper use of latrine and handwashing facilities.

47% of the students from the result said that staffs do tell them to make the latrine and its facilities always clean and neat, whereas some said that they are being told to maintain the latrine and its facilities others said they are told to use water while attending the latrine. When their teaching staffs were interviewed they admitted that they do tell them to maintain them, using them properly and making them clean so only the student thus some are neglecting, some are incorrigible and some just take them for granted and few do understand. All of the answers reflect that teachers are fulfilling their work of telling and educating student to maintain the latrine as is pinpointed by WASH School report done in Dodoma (11) that teachers do teach and insist on latrine maintenance and some of the facilities. Thus this depicts that students are incorrigible and lazy in implementing what are being told.

The result showed that most of the participants advocate that the hygienic study in their syllabus is included. But when the researcher went into observing the syllabus he found that there is inclusion of health related studies. On the study done in Fata on Pre-KAP Survey Report On School WASH which also shows the inclusion of the sanitation studies in the syllabus not only that but also the study done in Nyanza school in Kenya (14) did depict so. Now the problem for the improper use of the latrine it just arises from the behavior consideration as knowledge is always instilled in the class.

On the latrine promotion to proper use the findings shows, 71.9% of the participants said they promote, and the rest said no and sometime. These results were a bit contrary to the observation checklist results which showed that most of the latrine does not favor the proper use of them. The result shows that public schools have no good motivation environment in latrine, as compared to private this is due to overpopulation in



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public schools and lack of assistance personnel like workers. With the study done in Malawi (5) in primary school does shows that the condition of the latrine in public does discourage it proper use this is also depicted by the study done in vhembe district by Jerry E. et al ,more over the other study done in Dodoma( 11) speaks on school environmental condition in the latrine as the on discourage the proper use .Thus to ensure proper use of the public latrine there should be motivational environment which can be attractive and clean.

On enforcement to do cleanliness the result showed most of the participants said they being flogged in order to clean . The selection of this method by many schools determine that students do have knowledge but they need to be reminded by such a way always so that their laziness and negligence can be denounced as incongruent with skinner theory. This is contrary to the other studies which does portrays that teacher do teach them by demonstrations and theoretical ways as by the research done in Nyanza area in Kenya (13) that teachers do teach. Since most of the student are lazy and do take things for granted I think sometimes flogging is important but demonstrating and theoretical teacher is more significant.

### 4.4 Study Limitations.

The study did asses the proper use of latrine to peripheral schools in Dar es salam, through I bears some limitation since it was a cross-sectional it didn't cover the whole aspects of behaviors but the findings are the most cruel for interventions for behavior change in schools which will make students use properly the newly constructed latrines at their place and hence abstain from infections.

## 5.0 RECOMMENDATIONS AND CONCLUSION

### 5.1 Recommendations

The following were the recommendation which will improve the condition and hence the proper use of the latrine thus the pupils will abstain from the infections mostly dysenteric disease.

- Awareness raising. In Tanzania we had a lot of campaign like Mtu ni afya, P.H.A.S.T, CLTS and P.R.A which raised awareness to the community but why did they fail to attain the fostered goals? What went wrong? Actually as we pointed on the above that most of these program didn't make the scheduled knowledge updating to the community hence people take things for granted especially the young children .So we recommend for continue education process not just once then we left the society without enforcement, promotion and evaluations.
- Different motivational activities such as cluster meetings, folk songs, and popular Theatre should be strengthened ensuring participation of all target groups to further improve knowledge and awareness. Since most of the primary students are interested in drama, folk songs and theatre so this will instill knowledge to them.

- Administrative promoting good hygiene practices in latrine. This does Increase the efforts for proper use of latrine awareness and practice example the initiation of school latrine cleanness day and maintenance of the hand washing facilities, through this is of administrative concern to make it happen but once present does help much to make the children and the staff seeing the significance of making he latrine clean and properly used. Also provision of the I.E.C materials to the students should be made so as to abstain from the infections, this include provision of the leaflet, and posts which sensitized on the proper use of the latrine by improving the knowledge of the students

- Increase the number of sanitation facilities: To the school were by the latrine available is not in a sound and recommended ratio with the number of the students the school should take some initiative to construct and thereby increase the number of the latrine hoe this goes hand in hand with the repairing of the hand washing facilities and fixing of them to the place where are not available.

- BCC on sanitation and hygiene. Strengthen and support behavior change for improved sanitation and hygiene on proper latrine use to the primary school students. That behavior aspect and orientation of the peoples mind regarding the proper use of latrine have to be changed so as to impart them with the minimum health effect resulting from latrine use. As with the current program of Mtumba participatory hygienic transformation which is a comprehensive campaign in both the schools and communities which is launched in order to raise awareness on health and hygiene but mainly attitude transformation and proper latrine construction, the program should be supported.

### 6.0 CONCLUSION

There are a number of factors that play important roles on proper use of latrine among pupil including pupil to toilet ratio, toilet type, toilet age, and number of toilets in the toilet block, and possibly cleanliness. Cleanliness has to be insisted as it has been seen that most latrine were having fecal matters around them which discourage most of the students to use them but also improper storage of the facilities.

Also the study has shown on how the students attitude does contribute to the improper use of the latrine and also on the practice of the latrine use thus the use of flogging by teacher as to ensure the proper latrine use is totally inevitable as most of the students do not accept changes thus are lazy and do take things for granted, to remind them this is the proper way to fix scourges to them hence adherence to the proper use of the latrine.

The study shows the need for further improvement of the existing sanitation programs like CLTS and FOLLOW – UP MANDONA to equip with the behavior aspect which will have a potential change on the proper use of latrines and HWF hence will assist most into affecting attitudes hence attain the behavior change maturity. But to have a scaling up U plan for

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schools which will address various issues such as the crosscutting issue of menstrual hygiene. So it is only the proper use of the latrine which will make student abstain from diarrhoeagenic or ill health cycle

### LIST OF ABBREVIATIONS

**BCC**- Behavior Change Communication  
**CLTS** - Community Led Total Sanitation  
**HWF** - Hand Washing Facility  
**I.E.C**- Information Education and communication  
**KAP**- Knowledge Attitude and Practice  
**MDGS** - Millennium Development Goals  
**NIMR** -National Institute for medical research  
**PHAST** Participatory Hygiene and Sanitation Transformation  
**PRA**- participatory research Appraisal  
**RUCU**- Ruaha Catholic University  
**SPSS**- Statistical Package For Social Science  
**UNICEF** - United Nations Children Fund  
**VIP** - Ventilated improved latrine  
**WASH** - Water Sanitation And Hygiene  
**WHO** - World Health

### DECLARATION

#### Ethics approval and consent to participate

Ethical clearance was obtained from the Senate of Research Publication Committee of Ruaha catholic university. A permission to collect information from the district selected was requested from the Regional Administrative Secretary office who wrote a letter to the respective district where permission to collect data was granted through the District educational officer but the information and the permission letter was sent to the respective primary schools

Study participants were informed of the aim of the study and its importance and written informed consent was provided to the participants before recruiting them in the study which was a formal written consent and confidentiality. The information from this study was used for academic purposes only, thus each participant was treated anonymously. All the latrine which were seen improper were reported to the District educational officer at Temeke.

#### Availability of data and material

The data sets used and analyzed during the current study are available and still under analysis for subsequent publications but will be available upon request from the correspond author.

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This study was funded by the principal investigator himself P.M.C

#### Authors' contributions

P M C designed the study, conducted data collection, did data analysis and interpretation of findings, wrote and approved the manuscript. T M provided technical inputs to improve designing the study, supported data analysis, read, improved and approved the final manuscript write up. All authors have read and approved the manuscript to be shared for effective knowledge contribution.

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