



ASSESSMENT OF SANITATION METHODS UTILIZATION AMONG SOUTH TAYBA CITIZENS, IN EL-OBEID, NORTH KORDOFAN STATE, SUDAN, (JAN TO DEC 2017)

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ABSTRACT

Sanitation is the management and dumping of solid wastes and liquid waste in and around populations and families. The most hazardous waste product is human faeces, therefore it should focus on sanitation programs. The safe disposal of human faeces is essential for the health of families and the community as a whole. But promotion health is not the only benefit of sanitation⁽¹⁾. A cross-sectional study was carried out to aim assessment of sanitation methods utilization among South Tayba Citizens, in El-Obeid, North Kordofan State, Sudan. Building on community. A total of (260) households were selected, were participated (100%) response rate, among the total participants 52 (20%) were male whereas 208 (80%) were females, filled a self-administered questionnaire that was selected through a clustered sampling technique, and a systematic random sampling technique used to select sample size determined from each cluster (block). Data were analyzed using the Statistical Package of Social Sciences (SPSS) version (22.0) software. Chi-square (X^2 -test) was used to verify the possible association between different variables (dependent and independent). The findings showed that the majority of households (95.8%) have latrines, (10%) of citizens defecate in the open, (69.9%) of them have primitive pit latrines, (24.1%) ventilated improved pit, and (6%) of the septic tank. (96.2%) uses the sanitation methods. only (8.5%) of citizens have excellent knowledge of the hazards of sanitation methods and only (13.1%) of citizens have excellent knowledge of the importance of sanitation methods. (48.5%) of citizens wash their hands after defecation, (36.5%) of households have soap for handwashing.

KEYWORDS: Assessment, Sanitation, Methods, Households, Utilization, El-Obeid, Eljallabiya

1. INTRODUCTION

In a WASH program, the word “sanitation” commonly refers to human excreta disposal. It should also take into account environmental sanitation issues such as disposal of solid waste, disposal of animal excreta, liquid waste control and vector control⁽²⁾. Sanitation decreases or inhibits human waste pollution of the surroundings, thereby decreasing or eliminating transmission of infections from sources

such as animal excreta may remain important. Sometime simple latrines can be very effective, while untreated sewage distributes agents in the environment and can be the source of disease⁽²⁰⁾.

There are different types of latrines with varying degrees of suitability for diverse conditions. Technical designs are available from several resources. When constructing a hygienic latrine, an important criterion is to opt for dry or water-sealed.



The major standard regarding the choice of technology is the availability of water for flushing. For flush latrines to function, water must be available (at least 2.5 litres per flush) all year round. For new latrines to be sustainable the users must feel ownership of them. The degree of ownership felt by the users is generally dependent on the level of their input to the design and construction process (2).

The water supply and sanitation position in rural Africa has been very horrendous for a long period of time. According to UNICEF's 2010 Joint Monitoring Program (JMP), access to developed water supply and sanitation services was (52%) and (31%) respectively, although there are large regional disparities (3). Commonly, poor areas in developing countries are not connected to functioning central sewerage systems. In those conditions alternatives for 'traditional' flush toilets have to be found. Before taking the decision to construct completely new facilities, an evaluation of the circumstances of possible existing facilities should show the need for new construction. Such assessment should contain of a physical examination, study on options for rehabilitation as well as an economic analysis showing that revamping is more cost-effective on the longer term than newly constructed facilities (1).

In the Sudanese societies, close to (40%) do not have latrines in their houses and almost half use primitive latrines, of them (85%) use outdoor as an alternative to latrines (4). The Sudan household health survey 2006 (SHHS) discovered that under five children with diarrhea in North Kordofan State was (24.8%), about (28.3%) of household population uses of improved sanitary means of excreta disposal (5). Globally, improving water, sanitation and hygiene has the potential to avoid at least (9.1%) of the

disease burden or (6.3%) of all deaths (6). Contamination of water cause to poor sanitation is largely responsible for transmission, (7),(8). Reduced standards of general housing sanitation and personal hygiene are among the most common effects of disaster upon environmental health conditions and services. Sanitation diminutions with the disruption of solid waste disposal systems, the contamination of food and water supplies and the propagation of vectors raise the risk of disease (6).

2. METHODOLOGY

Community based descriptive cross-sectional study was done to an assessment of sanitation methods utilization among South Tayba Citizens, in El-Obeid, North Kordofan State, Sudan. Data collectors received a one-day intensive training in study design and purpose, questionnaire administration and collection. From the general population, the sample size was selected and taken proportionally from the study group.

2.1 Sample techniques

The sampling technique was employed is a cluster sampling technique; in this method, the households are divided into clusters or groups, and some of these are then chosen by systematic random sampling. The study area was divided into clusters (blocks), and a systematic random sampling technique used to select sample size determined from each cluster (block). All units considering in the same cluster as a homogenous group, hence, determined the total of sample size (n = 265). A sample was taken proportionally from each block, as follow:

Blocks	No. of households	Calculation ($n_h = n_{prop} \frac{N_h}{N}$)	Sample size required from block
Block (1)	290	$290 \div 1793 \times 265$	42
Block (2)	780	$780 \div 1793 \times 265$	116
Block (3)	227	$227 \div 1793 \times 265$	34
Block (4)	496	$496 \div 1793 \times 265$	73
Total	1793		265

Where:

n_h = sub-sample from block (h)

N_h = Size of block

N = Size of population

2.2 Data collection

The researcher prepared an Arabic questionnaire version (pre-coded and close-ended)

and translated it to the English and checked for consistency. The questionnaire was used to collect data on basic information and utilization of sanitation



methods among South Tayba citizens. Our final questionnaire included questions relating to sanitation methods, in addition to socio-demographic characteristics of the respondents, including age, sex, number of infants, number children, occupation, monthly income and, and educational level. The questionnaire comprised questions about presences of the latrine at home, types of latrines, utilization of latrines, latrines share, hazards of latrines, the importance of latrines, hand washing practice after defecation, availability of soap for handwashing and waste disposal.

2.3 Data processing and analysis

Taking samples and filling the questionnaire and cleaning all data and data was analyzed using Statistical Package for Social Sciences (SPSS), version (22.0). Chi-square (X^2 -test) was used to verify a possible association between different variables. Values were considered to be statistically significant when the p-value obtained was less than (0.05).

3. RESULT

A total of (260) households were selected, were participated (100%) response rate, among the total participants 52 (20%) were male whereas 208 (80%) were females. The obtained result below:

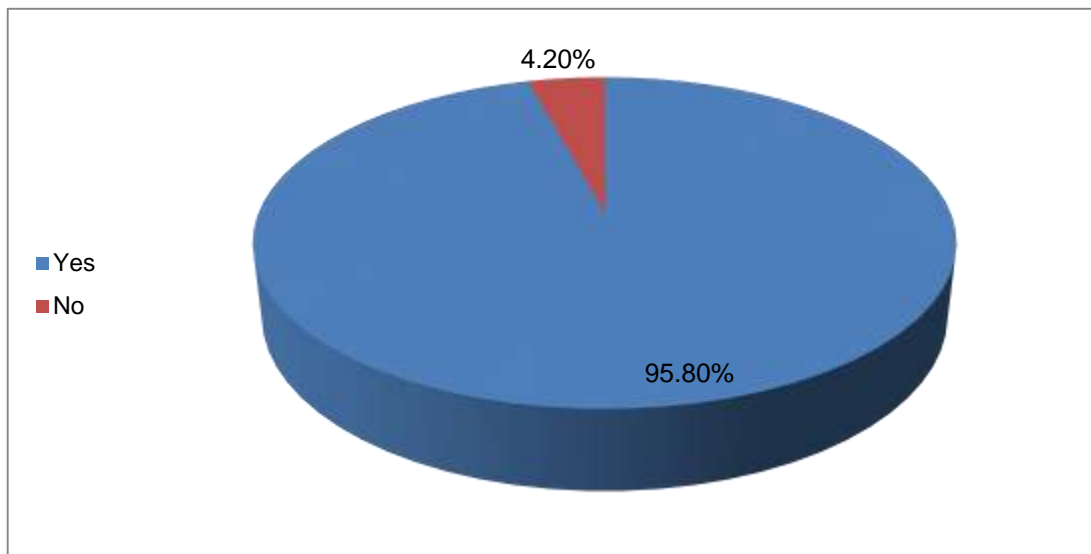


Figure (I): The presence of sanitation methods at households, South Tayba, El-Obeid City, 2017 (n=260).

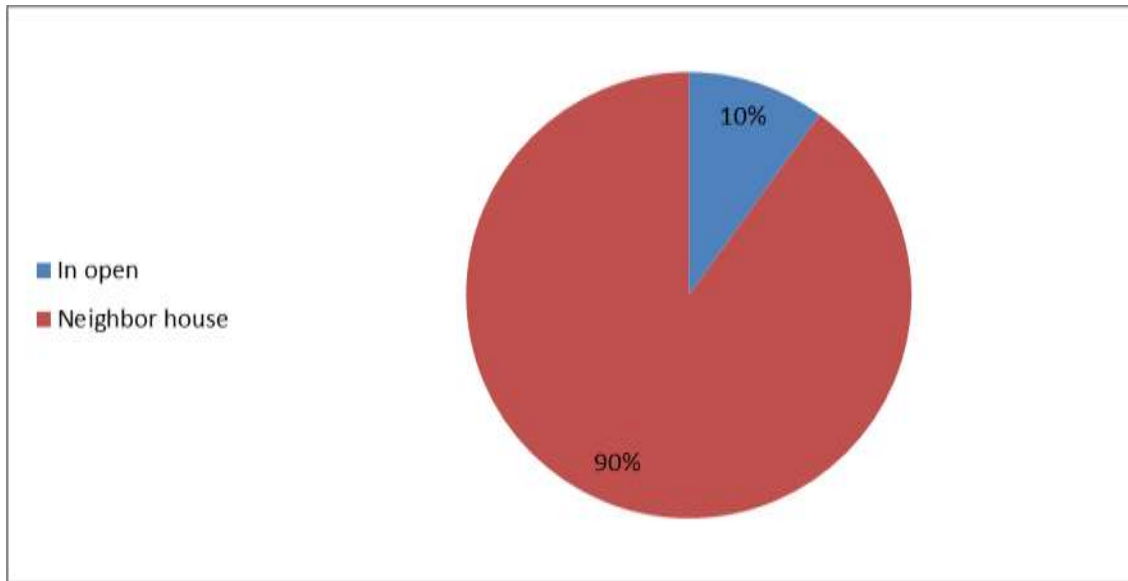


Figure (II): The place uses to defecation by citizens when they have not latrines at their home, South Tayba, El-Obeid City, 2017 (n= 260).

Table (1): Types of sanitation methods at household, South Tayba, El-Obeid City, 2019 (n= 249).

Types of latrines	Frequency	Percent
Pit latrine	174	69.9%
VIP latrine*	60	24.1%
Septic tank	15	6%
Total	249	100%

*(VIP) ventilated improved pit

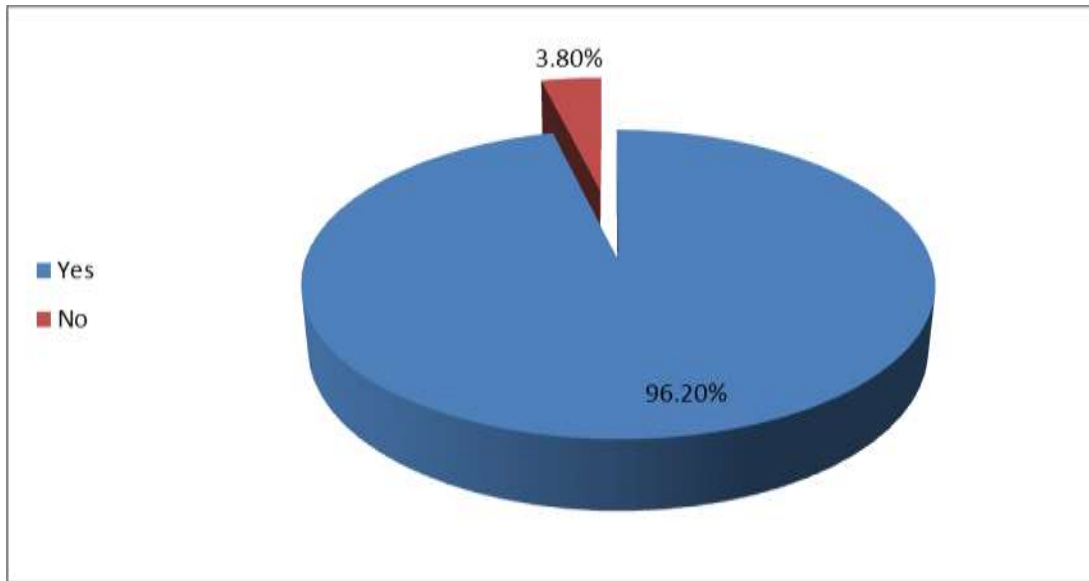


Figure (III): Utilization of sanitation methods, South Tayba, El-Obeid City, 2017 (n= 260).

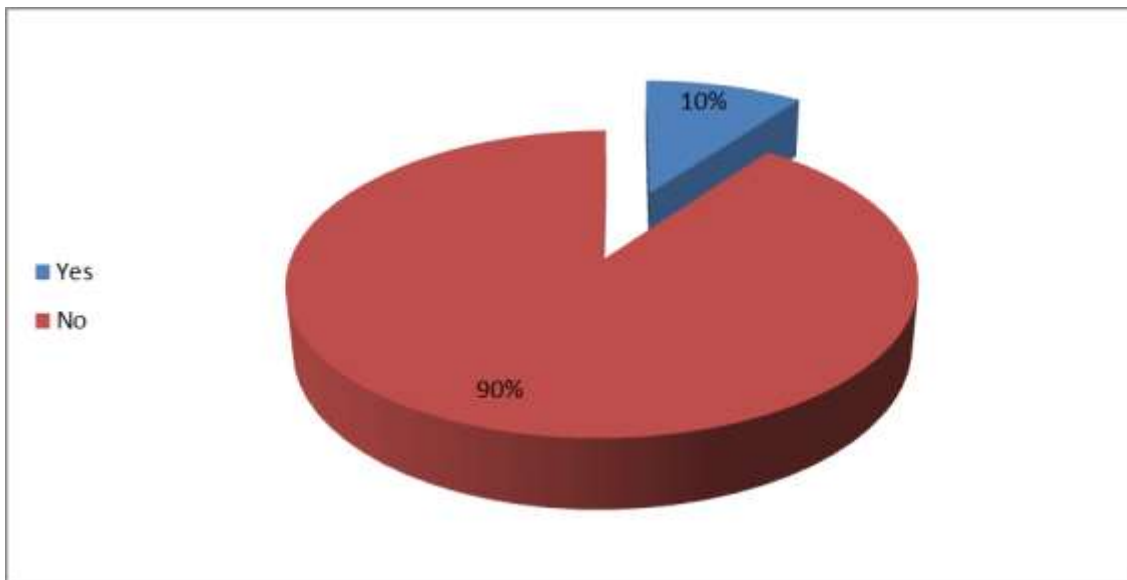


Figure (IV): Sharing in the use of sanitation methods, South Tayba, El-Obeid City, 2017 (n= 260).

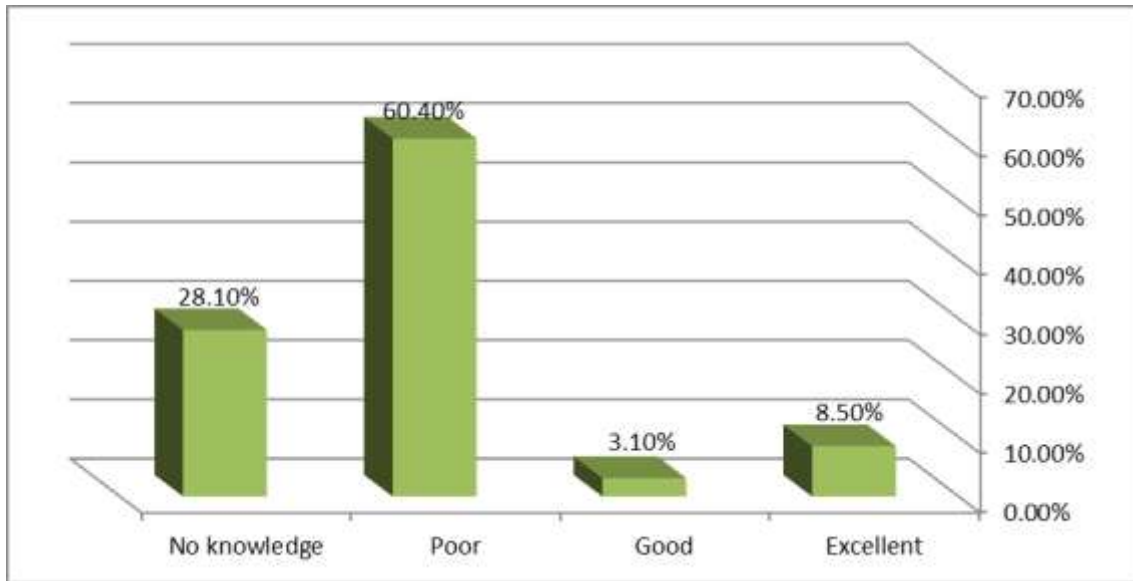


Figure (V): Citizens's knowledge for hazards of sanitation methods, South Tayba, El-Obeid City, 2017 (n= 260).

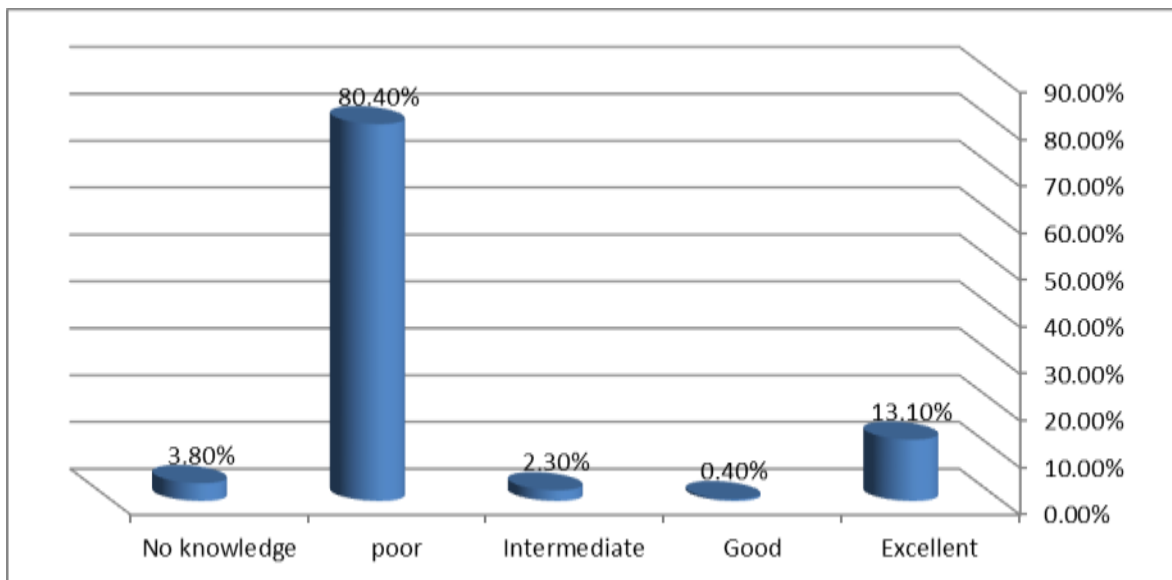


Figure (VI): Citizens's knowledge for the importance of sanitation methods, Eljallabiya and South Tayba, El-Obeid City, 2017 (n= 260).

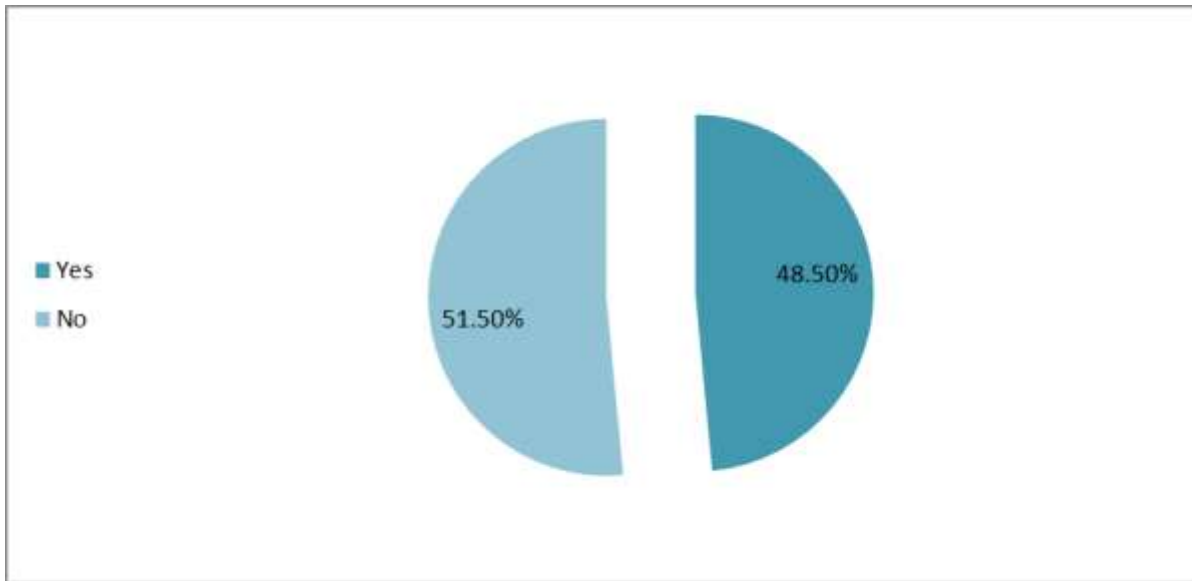


Figure (VII): The handwashing practice after defecation, South Tayba, El-Obeid City, 2017 (n= 260).

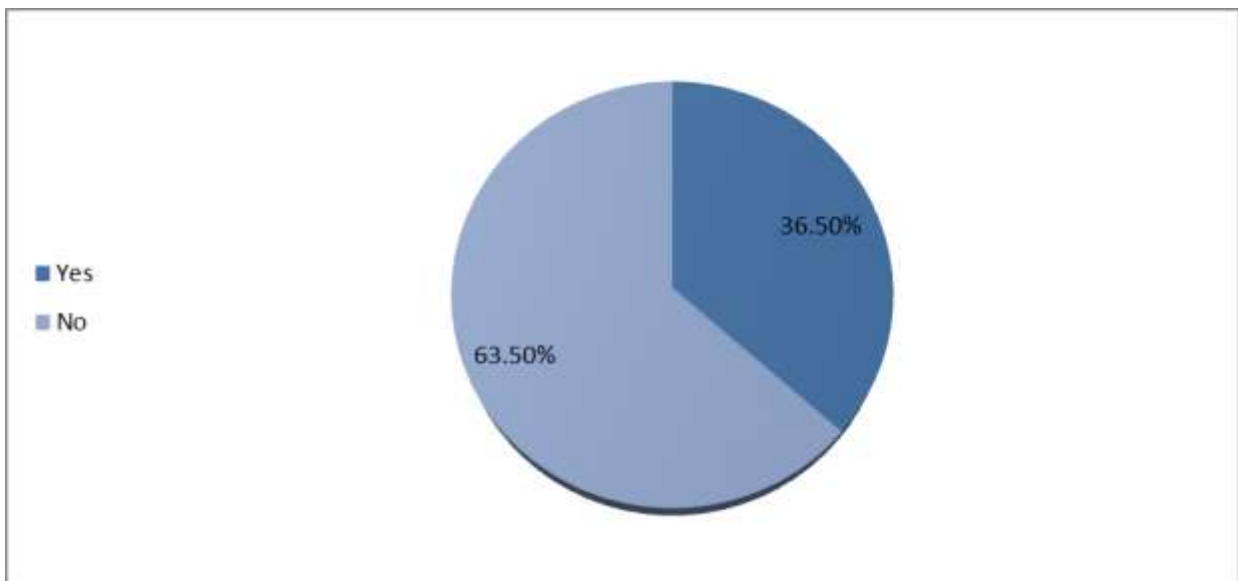


Figure (VIII): The availability of soap for handwashing at households, South Tayba, El-Obeid City, 2017 (260).

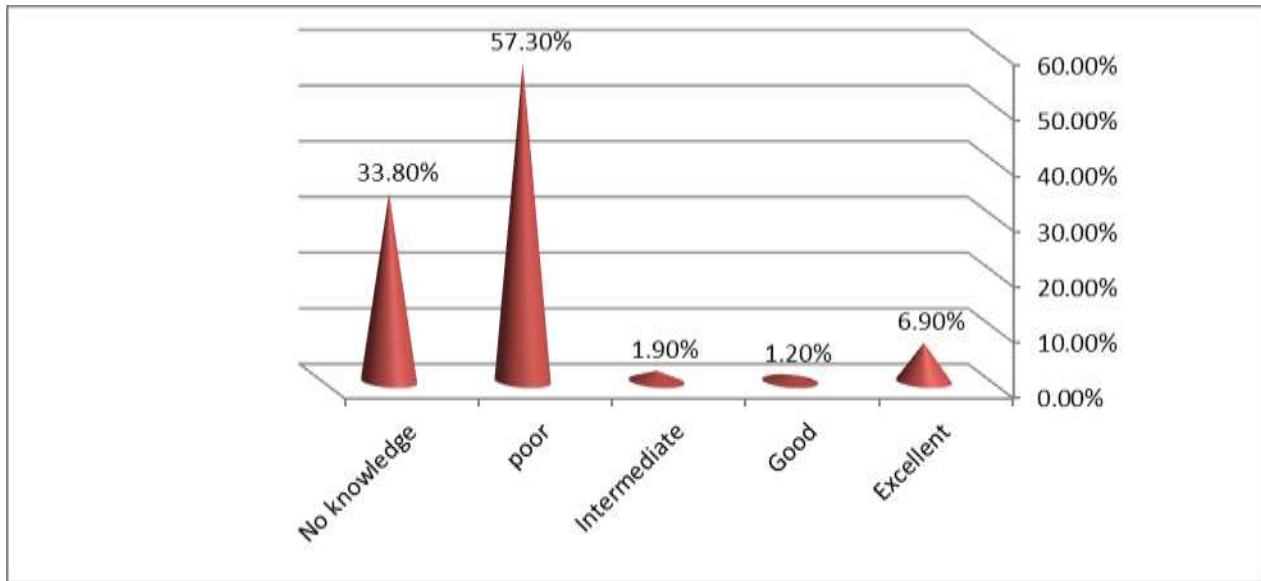


Figure (IX): Citizens's knowledge of sanitation-related diseases, South Tayba, El-Obeid City, 2017

Table (2): The relationship between gender and utilization of latrines, South Tayba, El-Obeid City, 2017(n= 260).

Utilization of latrines		Gender		Total
		male	Female	
Yes	Observed value	45	205	250
	Expected value	43.9	206.1	250.0
No	Observed value	0	6	6
	Expected value	1.1	4.9	6.0
Total	Observed value	45	211	256
	Expected value	45.0	211.0	256.0
		$\chi^2 = 1.31$	df = 1	p-value = 0.252

4. DISCUSSION

According to the present study showed that about (95.8%) of citizens have latrines at home, this result considered a high when compared with a similar study conducted in Sudan (2011), showed that close to (60%) have toilets in their houses and almost half use primitive latrines⁽⁴⁾. Similarly, in a study conducted in Kirkuk-Iraq (2015), showed that (83%) of households reported had individual latrines⁽⁹⁾. Also in a study conducted in South India (2016), only (11.3%) had sanitary latrine in the household.⁽¹⁰⁾ besides study conducted in India (2017), showed that (73.6%) of households have own toilet facility⁽¹¹⁾. As for other study conducted in southern India (2007), showed that (30.9%) had toilets⁽¹²⁾. In a study conducted in Sokoto State, Nigeria (2018) showed that (57.8%) of the households have toilet facilities⁽¹³⁾. Also in a study conducted in Anse La

Raye Village, Saint Lucia, Indies (2015), showed that (29%) had no household toilets⁽¹⁵⁾.

According to types of sanitation methods, the present study showed that (69.9%) of households have primitive pit latrines, (24.1%) ventilated improved pit, and (6%) septic tank, when comparing with similar study conducted in Sokoto State, Nigeria (2019), showed that out of which (67%) had used pit latrine with slab followed by use of bucket latrine by (29%) while five households (2.2%) have water closet⁽¹³⁾. in a study conducted in Anse La Raye Village, Saint Lucia, Indies (2015), showed that (65.4%) own a flush toilet with a septic tank, (1.9%) own an improved latrine and (0.6%) pit latrine⁽¹⁵⁾.

Among those having latrines, the utilization of latrines was (96.2%), World Health Organization, (1997) mentioned that "all men, women, and children should use latrines at home, at work, and at school".



The present result considered very high when compared with a similar study conducted in South India (2016), among those having latrines, (76.5%) of the respondents were using it routinely, as increasing to (93.2%), after the intervention⁽¹⁰⁾. Also, the present study considered very high with a similar study conducted in Zalingie (2005) among populations showed that (49%) use latrines⁽¹⁶⁾. Similarly, a study conducted in India (2017), showed that (83.3%) of individuals had used toilets⁽¹¹⁾. As for other study conducted in southern India (2007), only (67.9%) of households used toilets actually⁽¹²⁾. in a study conducted in Parla village, Kurnool district, Andhra Pradesh (2019), only (48.4%) were fully utilizing toilets. remaining (51.6%) households were going to open field defecation even though sanitary lavatory was present⁽¹⁴⁾.

In our study finding there no correlation relationship between gender and utilization of latrines { $X^2= 1.31$, P-value = 0.252}, in a study conducted in Zalingie among populations (2005), Latrine use by gender is relatively in balance with the male population at (50.51%) and female at (49.50%)⁽¹⁶⁾.

The present study illustrated that (10%) of citizens had shared latrines with other households, this result is considered as low when compared with study conducted in Anse La Raye Village, Saint Lucia, Indies (2015), showed that only (26.9%) of them indicated that they share toilets with other households⁽¹⁵⁾.

In the current study, (10%) of citizens defecate in the open, in a study conducted in southern India (2007), showed that (74.2%) of respondents defecate in fields, and there was no stigma associated with this traditional practice⁽¹²⁾. Also in a study conducted in Sokoto State, Nigeria (2019), showed that (42%) of households without toilet facility, of which (94.6%) defecate in nearby bush, (2%) use neighborhood toilet while (4.8%) defecate in the polythene bag to be disposed off into open field⁽¹³⁾. in a study conducted in Parla village, Kurnool district, Andhra Pradesh by (2019), showed that (75%) of study households were practicing open field defecation practices⁽¹⁴⁾.

Regard to the handwashing practice after defecation was (48.5%). Hand washing with soap and water is ideal, but hand washing with a non-soap cleaning agent such as ash or sand is an improvement over not using any cleansing agent⁽¹⁷⁾. Handwashing disturbs the transmission of disease pathogenic and so can significantly reduce diarrhea and respiratory infections⁽¹⁸⁾, in a study conducted (2011), showed that more than (80%) of population stated to wash

their hands before and after eating, after going to the toilets, and before food preparations⁽⁴⁾. Also in the KAP study conducted in Zalingie (2005), (88%) of the total population washes their hands⁽¹⁶⁾.

In our study, according to the presence of soap at hand washing site in citizen's households was (36.5%), similarly, a study conducted by Federal Ministry of Health, Sudan, (2011), only (55%) reported the use of soap during hand washing⁽⁴⁾. In a study conducted in India (2017), showed (32.6%) used soap with water for hand wash⁽¹¹⁾. Recommended that hand washing with soap, particularly after defecation and after handling a child's stool, can reduce diarrheal incidence by 42-47 % while continuing work⁽¹¹⁾. During 2005's study conducted in Zalingie showed that (66%) of the responses use soap when washing hands⁽¹⁶⁾.

5. CONCLUSIONS

There was a poor knowledge regarding the importance of sanitation methods and their hazards and sanitation-related diseases. The majority of households have latrines. Less than half of citizens wash their hands after defecation, tertian of households have soap for hand washing.

6. RECOMMENDATIONS

There need for health education programs should conduct among the population for increasing their awareness thus improving sanitation methods utilization.

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