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The Factors That Prevent Communities' Adaption to Hygiene and Sanitation in El-Abassiya Host Communities South Kordofan State-Sudan (2020)

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Abstract

Despite several interventions over the years, sanitation coverage remains low; statistics on sanitation have proven that very few of these beneficiaries commence the construction of latrines. The question that, then, needs to be asked is why there is low sanitation coverage even when beneficiaries are provided with all the necessary inputs and materials. In recent years, program implementers have provided households and communities with materials for the construction of latrines but District statistics on sanitation have proven that very few of these beneficiaries commence the construction of latrines, let alone complete construction in the ward. This study aimed to determine factors that prevent communities' adaption to hygiene and sanitation through the Ministry of Health's extension campaigns and Non-governmental organization programs in South Kordofan State- El-Abassiya Host Communities. A descriptive study was conducted and covered 375 study participants (Quantitative Data) and findings were analyzed using SPSS. Findings highlighted Behavior Change Factors such as (42.1%) disposal of solid waste on the nearest road. (51.8%) had participated in hygiene promotion sessions mainly in 2020, (27.2%) mentioned that the ministry of health was the main facilitator of the session and (37.1%) attended more than three sessions. (98.4%) of participants wash their hands with soap.

All of the participants were using hand pumps as the main source of drinking water. Also, Socio-Cultural Factors were shown as (91.7%) treated their drinking water, and (8.5%) used safe water storage containers. The findings also mentioned Environmental Factors as (54.9%) didn't have Latrines (and 30.2%) of those who had latrines reported a duration of construction of more than five years. In socio-economic factors (67.7%). reported having livestock in the house -, (51.5%) reported positive changes following public health promotion. The qualitative data source was interviews with five NGOs working in WASH activities and their Sustainability factors, approximately most of the host community ensured the importance of the physical gradual termination of the NGOs program by many approaches like our participatory approach links to exit technical service and insinuation builds private sectors capacities, either during or after the project, the formed committee was responsible for mobilizing and supporting the involved community in all projects, and also support all activities that achieved behavior change within the community and Conclusion and recommendations, in organizational factors, The 5 organizations

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agreed that the hygiene practices did not improve due to insufficient supply of water for household use, Extend the duration of the project more than one year to achieve sustainability issues and to retain the concept of desire behavior change. WASH Project implementers to hold health awareness programs aimed at changing the behavior of the community, especially on sanitation and hygiene programs. WASH Project implementers to provide adequate resources that are enough to benefit more community members to increase coverage.

1. Introduction

Universal access to water, sanitation, and hygiene (WASH). are essential for human health, well-being, and development outcomes, yet service levels are low in many low- and middle-income countries (LMICs). Sustainable Development Goal (SDG). calls for universal and equitable access to basic WASH services by 2030 and improvements in levels of service (UNICEF, 2019**).**

Despite the progress made worldwide in recent decades in the area of water and sanitation, more than 2.3 billion people still live without access to sanitation facilities and some are unable to practice basic hygiene. Access to water and basic sanitation has deteriorated in Sudan due to water rationing, burst water, sewer pipes, poor disposal of rubbish, and overpopulation (UNICEF, 2019).

Improvements in health associated with better water quality are smaller than those obtained through increases in the quantity of water, which allow for better personal and domestic hygiene practices. Population groups that consistently use more water have better health than groups that use less water. This has been shown repeatedly for several health outcomes such as specific diarrheal pathogens, diarrheal morbidity, and child growth (UNICEF, 2019).

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Enhancements in water and sanitation do not automatically result in improvements in health. The addition of hygiene education is required to impart concern on the basic issues of hand washing, proper disposal of fecal matter, and protection of drinking water (Prüss., *et al* 2014).

Although the main focus of the WASH sector has been on household access, 'universal access' also includes WASH in populations that have been involuntarily displaced, or 'dislocated populations' as defined by Cronk Slaymaker & Bartram (UNICEF, 2019).

Settings where such populations reside, including orphanages, prisons, and refugee and Internally Displaced Persons (IDP). settlements, have received little attention in terms of the monitoring and improvement of WASH services and environmental conditions (Prüss., *et al* 2014).

There are an estimated 140 million orphans worldwide; and two to eight million children live in institutional care settings. An estimated ten million people are incarcerated worldwide. Over 65 million people have been forcibly displaced. Adverse environmental exposures in these settings compromise human health, well-being, and development outcomes. These problems have received insufficient attention, and are likely to increase in severity due to population growth, climate change, and political instability. Effective policy and programmatic approaches to improving conditions in these settings are needed. The Water Institute at UNC (University of North Carolina). and World Vision organized a side event on WASH for involuntarily displaced populations, with an emphasis on orphanages, prisons,

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and refugee and IDP settlements, at the UNC Water and Health Conference on October 18th, 2017 (UNICEF, 2019).

1.1 Sanitation and hygiene

Ensuring that adequate sanitation is available and that communities both understand and practice safe hygiene was critical in reducing the spread of cholera amongst communities. The community-led total sanitation (CLTS). approach, which mobilizes communities to construct and use their latrines to stop the prevalence of open defecation is UNICEF's long-term prevention and mitigation strategy that reduces the likelihood and scale of similar outbreaks (UNICEF,2019).

Key behavior change campaigns were carried out by the communication for development (C4D). task force using various methods such as street theatre, radio talks, and open discussions to relay key messages. These encouraged people to adopt positivity (UNICEF,2019).

El-Abassiya consists of 107 villages, 82,122 Host communities, 16,500 in the ten villages. This number is distributed among 600 refugees, and 17278 displaced people. The total population of El-Abassiya includes 100,000 individuals.

the research target 10 villages (quadrat Alzabal, Albadiria, Alsnadra, Alshaawaya, Aldaamira, Tawfiyn, Awahu Alshurfa, Alsarif, Alradm, Jwqay).

1.2 Problem statement

Despite several interventions over the years, sanitation coverage remains low. In the recent years, program implementers have provided households and communities

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with materials for the construction of latrines but District statistics on sanitation has proven that very few of these beneficiaries actually commence the construction of latrines, let alone complete construction in the ward. The question that then needs to be asked is why there is low sanitation coverage even when beneficiaries are provided with all the necessary inputs and materials. Without detailed assessments, it is not possible to state if low coverage of ventilated pit latrines in the ward is due to poor mobilization or other social factors.

Over 11 per cent of child deaths in Sudan caused by diarrhea, attributed mainly to poor sanitation, water and hygiene. Two million children in Sudan suffer from acute malnutrition, 50 per cent of which is associated with repeated diarrhea or worm infections (UNICEF,2019).

With nearly a third of households (over 10 million people). practicing open defecation, Sudan has the highest prevalence of open defecation in the Middle East and North Africa region, posing grave public health risks to transmission of diseases such as cholera, diarrhea, dysentery, hepatitis A, typhoid and polio. Open defecation is a manifestation of multi-sectorial deprivations be it poverty, malnutrition, education and affects women/girls disproportionately (UNICEF,2019).

Only a third of the households having access to proper sanitation; while about 68 per cent of households have access to improved drinking water sources. Taken together just about a third have simultaneous access to water and sanitation in the country with wide disparities between states; between urban-rural and between the richest and poorest (UNICEF,2019).

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Access to Water Sanitation and Hygiene (WASH). in Institutions (schools and primary health centers). is also limited. Two thirds of the existing schools do not have improved sanitation facilities and a quarter of them do not have access to clean water. This is further compounded by the lack of gender segregated sanitation facilities including for menstrual hygiene management; and ease of access to the physically disabled children. This negatively impacts children's attendance and enrollment, especially girls.

The total number of Internal Displaced people in South Kordofan State estimated to be 16,500 people, according to the Sudanese Humanitarian Aid Commission (HAC)., the International, UN Office for the Coordination of Humanitarian Affair Humanitarian Needs Overview, and the State Ministry of Health Therefore, this study aimed to The factors that prevent communities' adaption to hygiene and sanitation in South Kordofan State targeting hosting communities.

1.3 Justification

- ✓ Despite of high contribute from humanitarian WASH support, some factors happened that prevent good behavior change in hygiene promotion**.** By the end of the research I would like to identify the factor of prevent behavior change
- ✓ To identify the innovation idea toward solving this problem
- ✓ To identify the level of modalities and guidelines that they are doing and to compare that with level of community behavior change**.**

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- ✓ According to the best knowledge of the researcher there is no updated previous studies conducted about this issue in Sudan, this study will help colleagues to expand and conduct more studies on this area.

1.4 Objectives

1.4.1 General objective :

The Factors That Prevent Communities' Adaption to Hygiene and Sanitation in El-Abassiya Host Communities South Kordofan State-Sudan (2020).

1.4.2 **Specific objectives**

1. **To determine** factors that prevent communities' adaption to hygiene and sanitation in South Kordofan State- El-Abassiya Host communities.
2. **To test** the validity of hygiene promotion approaches, modalities effectiveness on communities.
3. **To assess** the International and National Govemental Organization, (INGOs) and Water, Sanitation and Hygiene department (WASH) challenges and impeding factors of services delivery.

2. Methodology

2.1 Study design

Descriptive cross-sectional community based study.

2.2 Study area

The study was conducted in South Kordofan State- El-Abassiya Host Communities. South Kordofan is one of the 18 states of Sudan. It has an area of 158,355 km² and

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an estimated population of approximately 1,100,000 people (2000). Kaduqli is the capital of the state. It is centered on the Nuba Hills. At one time it was supposed that South Kordofan was the only state in (North). Sudan suitable for producing oil, but oil has also been discovered in neighboring White Nile State in larger quantities (HNO 2021) .

Under the Comprehensive Peace Agreement, residents of South Kordofan were to hold popular consultations in 2011 to determine the constitutional future of the state. Although South Kordofan is part of Sudan, it is home to many pro-South Sudan communities, especially in the Nuba Mountains, some of whom fought alongside southern rebels during the long civil war.

In 2009 and 2010, a series of conflicts between rival nomadic tribes in South Kordofan caused a large number of casualties and displaced thousands.

On June 6, 2011 armed conflict broke out between the forces of Northern and Southern Sudan, ahead of the scheduled independence of the South on July 9. This followed an agreement for both sides to withdraw from Abyei. On June 20, the parties agreed to demilitarize the contested area of Abyei where Ethiopian peacekeepers were deployed. Abyei is currently controlled by the United Nations Interim Security Force for Abyei .

2.3 Study population

All population who attended during study setting and period.

2.3.1 Inclusion criteria

All population who attended during study setting and period.

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those who given consent to be part of the study.

2.3.2 Exclusion criteria

Those out of study area and setting. And Those refused to participate in the study

2.4 Data collection tools

2. 4.1 Interviewing questionnaire was used for this study including questions that fulfill the objectives of the study (Appendix2). Data was collected by principle investigator.

2. 4.2 Direct Interview with five NGOs staff members of WASH projects

2.5 Sampling

2.5.1 Sample size

The sample size has been estimated depending on the population number of the study. Total number of IDPs in South Kordofan State which estimated by Humanitarian Aid Commission to be (16.500). the researcher used the equation of Richard Giger as follow:

where:

n: Calculated sample size

N: Population.

d: Estimated Error

z: the standard degree equivalent to significant level 0.95 and equal to 1.96

$$n = \frac{\left(\frac{z}{d}\right)^2 \times (0.50)^2}{1 + \frac{1}{N}\left[\left(\frac{z}{d}\right)^2 \times (0.50)^2 - 1\right]}$$

The calculated minimum sample size is

$$n = \frac{\left(\frac{0.05}{1.96}\right)^2 \times (0.50)^2}{1 + \frac{1}{16.500}\left[\left(\frac{0.05}{1.96}\right)^2 \times (0.50)^2 - 1\right]} = 375$$

The sample size is 375 individuals.

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2.5.2 Sample size

Total coverage study by Interview with five NGOs staff members of WASH projects.

2.5.2.1 Sampling technique

Convenient none randomized sampling technique was applied to select a representative study sample.

2.6 Data management and statistical analysis

The collected data has been assembled and analyzed using SPSS (Statistical Package for Social Science). IBM 21 version. The statistical analysis contains the following outputs,

1- Frequencies and percentage of variables mentioned in the questionnaire.

2- Graphic charts to represent the percentage of collected data.

3- The research hypothesis has been tested using dependent one sample T Test.

4- Cross-tabulation has been held to test the relationship between variables.

2.6.1 Data analysis

Descriptive statistics in term of frequency tables with percentages and graphs.

Descriptive analysis was performed for all study variables with mean and standard deviation for quantitative data and frequencies with proportions for qualitative data. Bi-variable analysis to determine the associations between the main outcome variable and the other relevant risk factors with Chi square test (for categorical variables). and t- test (quantitative variables). statistical tests. P_{value} of 0.05 or less is considered significant.

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1. Written consent was obtained from ministry of health administrative authorities.
2. Study data information was used for the research purposes only, the confidentiality issue was intentionally considered.

3.Results

3.1 Questionnaire Results

In a descriptive cross- sectional Study based study, 375 study participants were enrolled in this study fulfilling all inclusion criteria, SPSS version 25 used for analysis and obtaining the following results.

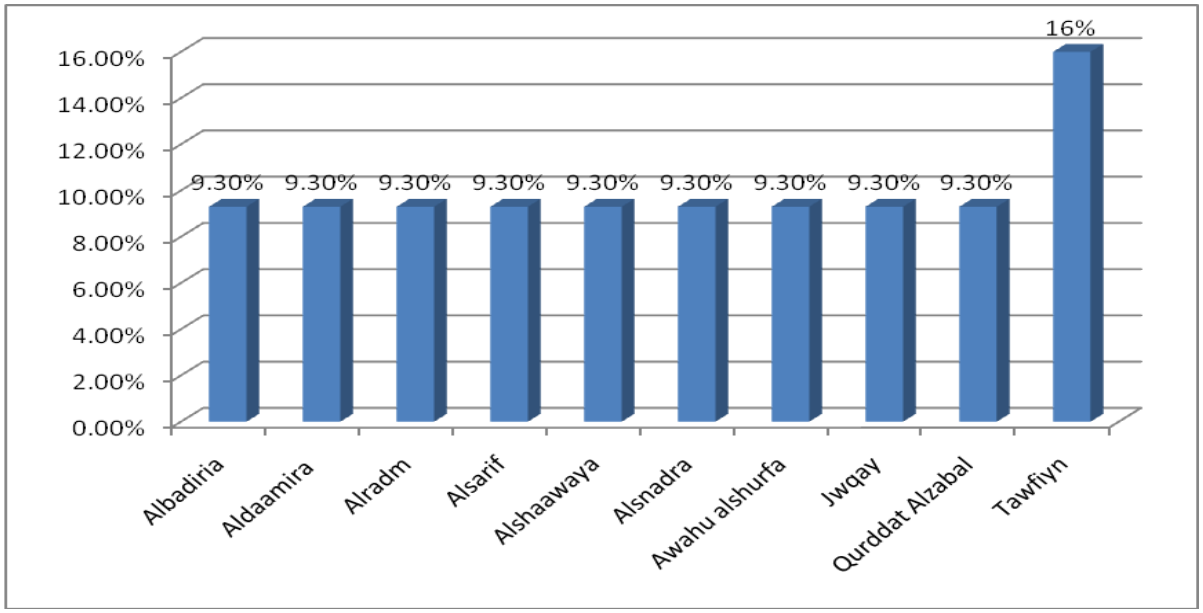

Figure (1). Distribution of study participants according to their Villages (n=375).

3.1.2 Environmental Factors

3.1.2.1 Diarrhea in last six months

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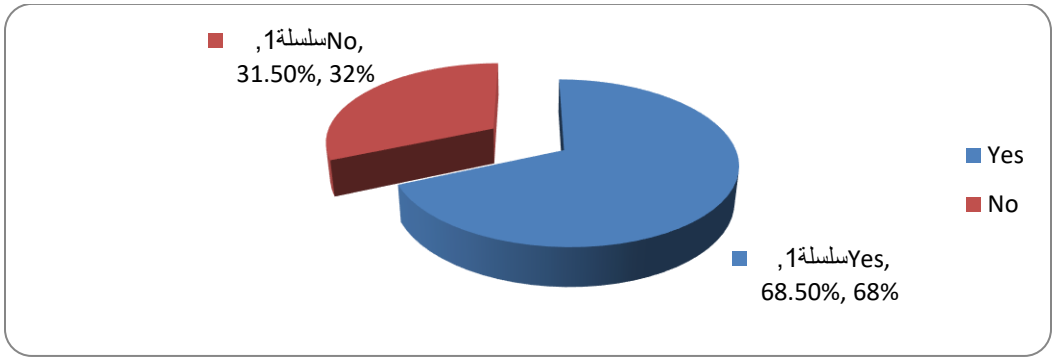

Figure (2). Distribution of study participants according to their family infection with diarrhea in last six months(n=375).

Three hundred and seven (81.9%). of participants reported living duration in the village for ten years and more and 257(68.5%). their family members had history of diarrhea in last six months, as reported in figure (2). There is a correspondence between the percentage of diarrheal diseases and unsafe water and the type of services provided by the organizations provided. Which showed that confirming what was previously mentioned (UNICEF 2019). and they mentioned the same thing

4.1.2.3 housing condition

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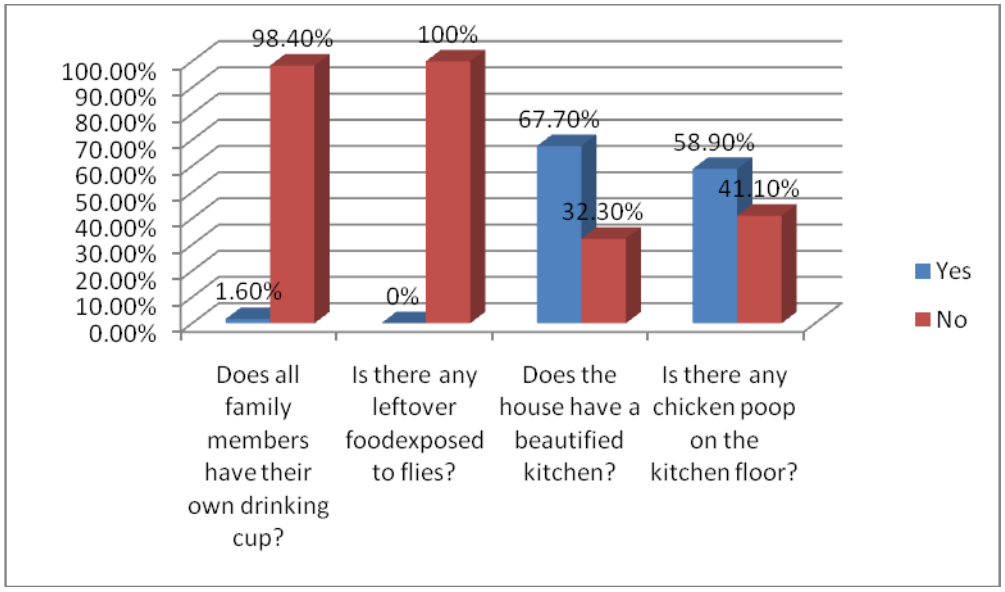

Figure (3). Distribution of study participants according to their housing condition (n=375).

Six (1.6%). mentioned that each of their family members had his/her own drinking water cup, none reported leftover food exposed to flies,254(67.7%). had beautified kitchen and 221(58.9%). had chicken poop in the kitchen floor, as showed in figure (3).

3.1.3. Socio Economic Factors

3.1.3.1 House livestock

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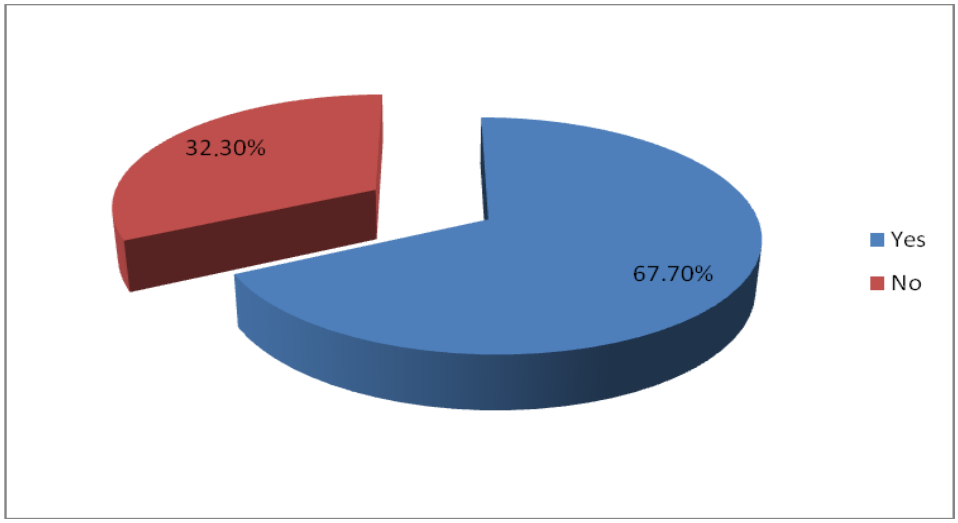

Figure (4). Distribution of study participants according to their in-house livestock(n=375).

Two hundred fifty-four (67.7%). reported having livestock in house

3.1.3.2 Access to Social Media

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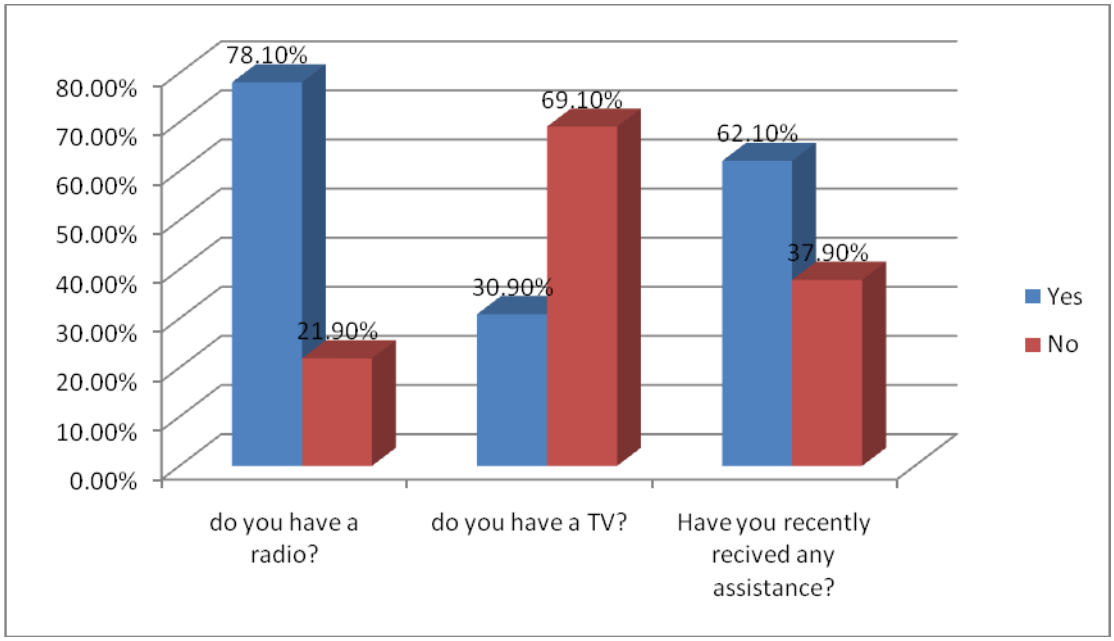
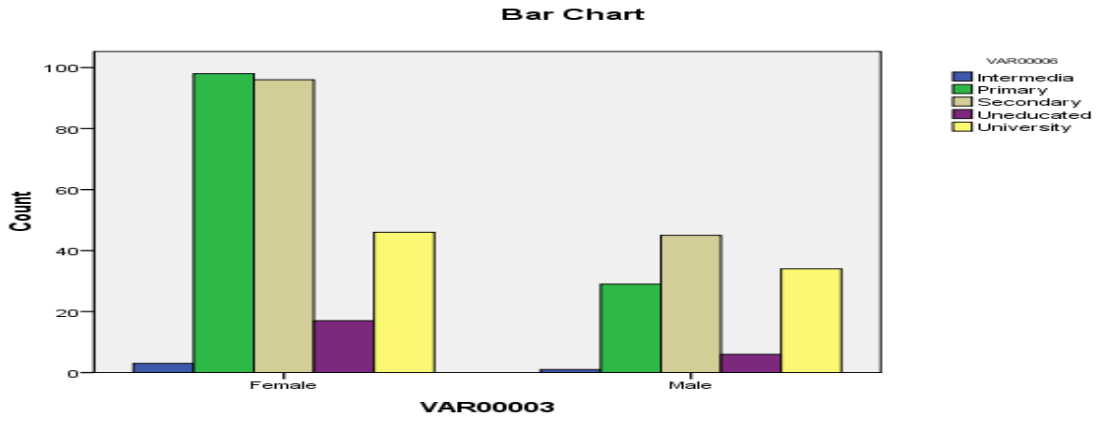


Figure (5). Distribution of study participants according to their accesses to social media(n=375).

293(78.1%). had radio,116(30.9%). had TV and 233(62.1%). had recently received assistance, as showed in figure (3).



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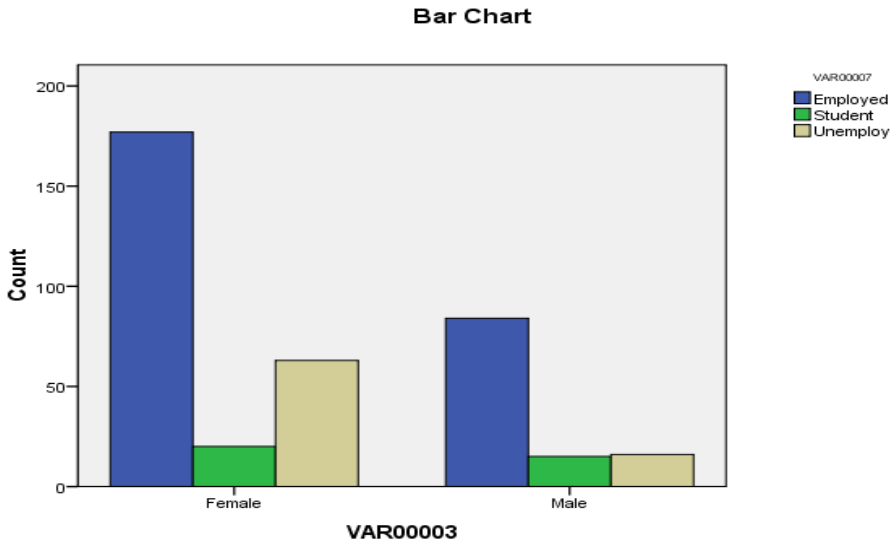
3.1.3.3 The association between gender and occupation:

gender * Occupation



3.1.3.4 The association between gender and sources of health information:

gender * sources of health information

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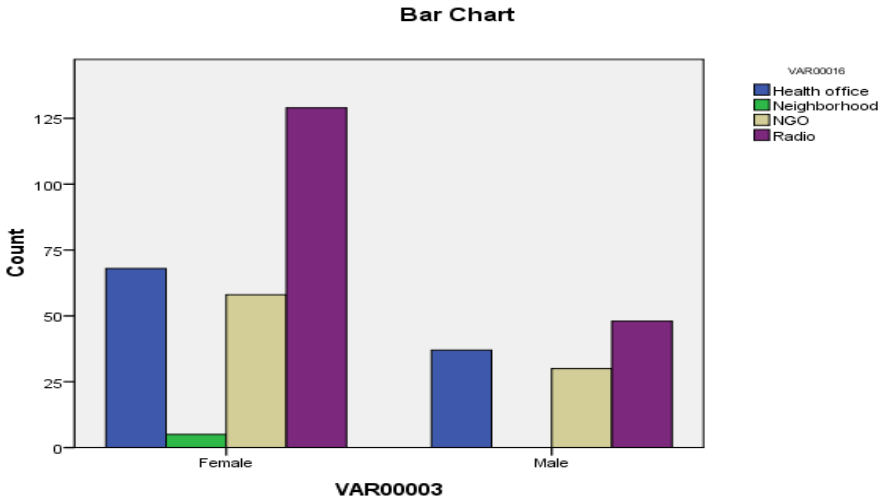
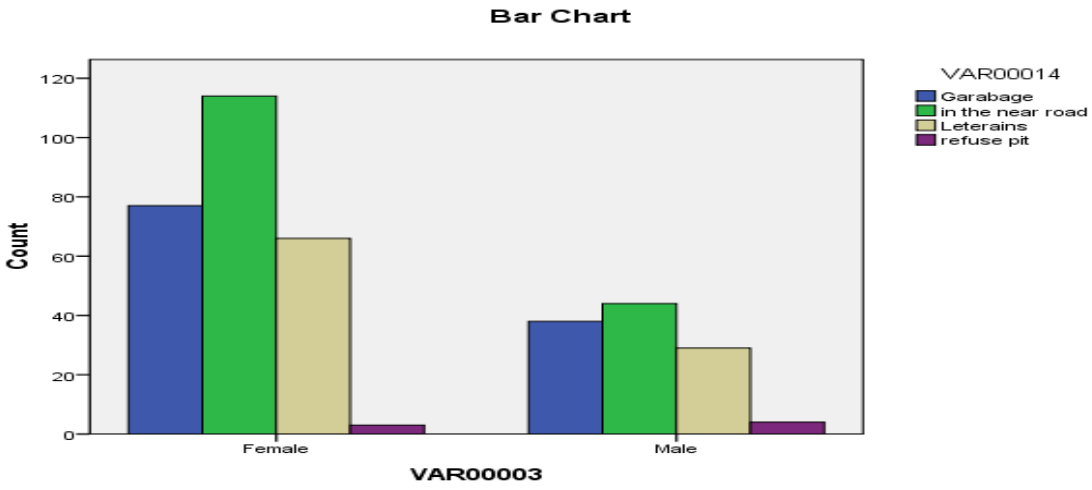


3.1.3.5 The association between gender and dispose of solid wastes: -



3.1.3.6 The association between gender and latrines used: -

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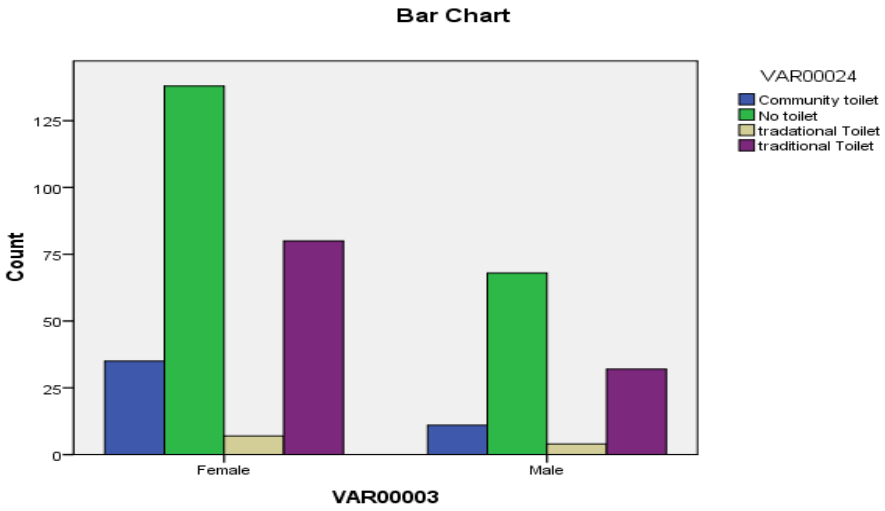

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4. Discussion

This study aimed to determine factors that prevent communities' adaption to hygiene and sanitation in south Kordofan state- El-Abassiya host communities and covered 375study participants who enrolled in this study.

Growing-city pollution is seen as an inability of an existence infrastructural facilities to support the growing population of humans or other living species in that environment. Growing-city pollution amidst the world has become a topic of increased scholarly review. Yet, insignificant attention has been given to how rising city-pollution influences public health and standard of living.

The challenges lay in the provision of hygiene enabling facilities, particularly, the lack of access to sanitation for the maturing girl child and a school curriculum that provides positive reinforcement and practical life skills training approach.

In this current study 260(69.3%) were females with male to female ratio of 1:2.3 in similar context with Blessing dube, *et al* where random sample of 400 participants including (196 males, 204 females) with male to female ratio of 0.90:1 (Mukadi *et al.*, 2016) Moreover; Mukadi, *et al,2016* reported that female predominance was observed with male to female ratio was 1:1.8 (A Sherriffi *etal.*, 2002)

In this study 257(68.5%) their family members had history of diarrhea in last six months, in agreement with Mukadi, *et al*, reporting family history of diarrhea and gastrointestinal diseases was common among more than half (57.2%). (A Sherriffi *etal.*, 2002).

We reported that two hundreds and six(54.9%) didn't have latrine,113(30.2%) of those who had latrine reported duration of construction since more than five years,354(94.4%) followed open defecation,51(13.6%) reported having human feces on

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the ground within 10 meters of house area,40(10.7%) reported having loose rubbish within 10 meters of the house, in this context A sherriffi et al revealed that most of their participants reported poor sanitation level and nearby human feces and animal feces contributing to endemic of animal borne diseases (Nina *etal*,. 2018).

Furthermore; Temidayo, *et al* addressed Growing-city pollution and sanitation: causality and evidence from major cities of southwestern Nigeria reveled that About 6.2% uses modern latrine facilities and about 67% practices open defecation. Access to water/sanitation facilities, distance to nearest health clinic or hospital are the main features influencing multidimensional poor sanitation/hygiene index. Focus Group Discussions (FGDs) revealed that discussants lacked an understanding of the linkages between hygiene practices and water-related diseases. Growing-city pollution influences endemic chronic diseases because sanitation is poorly accessible. Interaction between sanitation and population density in predicting poor health outcomes as evidenced in this study. Efforts should be geared by all stakeholders to boost and create livelihoods activities that can curtail rural-urban drift. Rural migrants should be encouraging to stay in their vicinity to enjoy less air-polluted environment and decent accommodation (Esteves and Cumming, 2016).

Additionally; Nina A martin, *et al* studied Sustained adoption of water, sanitation and hygiene interventions: systematic review reported that Definitions of sustained adoption varied widely and were often inadequate, making comparison of sustained adoption across studies difficult. The time frame for measurements of sustained adoption is frequently inadequate for examination of longer-term behavior change.

Ideally, an evaluation should specify the project period and describe the context surrounding adoption, make measurements at multiple time points, diversify measurement

methods and describe and measure a range of factors affecting sustained adoption. Additional consideration needs to be given to developing behavior change models that emphasize factors related to sustained adoption, and how they differ from those related to initial adoption (Nina *et al*, 2018).

One hundred ninety-four (51.8%) had participated in hygiene promotion sessions mainly in 2020,102(27.2%) mentioned that ministry of health was main facilitator of the session and 139(37.1%) attended more than three sessions, similarly Sherriffi et al found that (72.5%) of their participants attended health promotion sessions mainly delivered by ministry of health (A Sherriffi et al., 2002) , and it is observed in our study that approximately none of 375 (100%) of the participants attend of the session with the water and sanitation committee.

In this current study 193(51.5%) reported positive changes following public health promotion while all (100%) mentioned that these changes were still evident two years post intervention, in consistent with A sherriffi et al where positive impact of promotion sessions was clearly reported and audited by many literatures (Nina *et al*, 2018).

Furthermore; Mukadi et al revealed better influence of public health promotion sessions in their community which explained by raised awareness among the targeted community (Mukadi et al., 2016).

Moreover; A sherriffi et al reported that adoption of hygiene practices is influenced to some degree by social, lifestyle, and environmental factors—with higher hygiene scores occurring in more socially disadvantaged groups. Increased use of chemical household products in the more socially disadvantaged groups within ALSPAC has emerged as an important confounder in any study of hygiene and ill health (Nina *et al*, 2018).

5.Conclusion

- Approximately most of the host community ensured the importance of the physical gradual termination of the NGOs program by many approach like our participatory approach links to exit technical service and insinuation builds private sectors capacities, either during or after the project, the formed committee was responsible for mobilizing and supporting the involved community in all projects, and also support all activities that achieved behavior change within the community.
- In general, researcher believes that community WASH awareness work done by NGOs and MoH was not adequate, as round 15% of the targeted individuals received only 1-3 sessions, this means around 65% of the community, which is the reasonable majority, actually did not receive any adequate support that can effectively result in behavioral changes.
- WASH aspects that require additional external support, such as technical or economic support (latrines, water supply - more WASH education" cannot result in community behavioral changes without this support., This was also reflected in the survey responses (only 18 participants, or Only 4.8% of the community is able to introduce changes by themselves, meaning that for economic and other technical reasons, most communities cannot go through change without external support. This is especially true in the south Kordofan region as well as the limitation of the government related services (WASH and Health).

6.Recommendations

1) Organizational and host-community efforts should be combined together to ensure access to healthy clean water through supporting interventions in WASH initiatives. Especially by Financing management interventions for savings, fostering knowledge and behaviors for better family financial management.

2) WASH Project implementers to hold health awareness programmes aimed at changing the behaviour of the community especially on sanitation and hygiene programmes.
3) WASH Project implementers to provide adequate resources that are enough to benefit more community members to increase coverage.
4) Extend the duration of the project more than one year to achieve sustainability issues and to retain the concept of desire behavior change.
5) Donors have to focus on developing more WASH projects rather than focusing on emergency projects through involving the integration of household economic strengthening activities and complementary interventions.
6) The study recommends that to keep updated data that are used in enhancing the quality of programs by using population-based cohort studies and other tools to provide more accurate knowledge about water and sanitation and to support new modalities in WASH.

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