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ASSESSMENT OF WATER SANITATION AND HYGIENE PRACTICE OF TSANGAYA SCHOOLS IN MAIDUGURI AND ENVIRONS

¹Isa, A.; ²Aji, M.M.; ³Lawan, A.G. ⁴Bashir, M.

Department of Water Sanitation and Hygiene, Faculty of Physical Sciences, University of Maiduguri, P.M.B 1069 Maiduguri, Borno State, Nigeria

Corresponding author: Isa, A; isaali38@unimaid.edu.ng, isaali38@yahoo.com

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ABSTRACT

Background

Water Sanitation and hygiene practice is of paramount to pupils (Almajirai) boarding Tsangaya schools within Maiduguri and environs. As the population of Maiduguri and environs increases, the number of children attending Tsangaya education is drastically increasing. The sanitation and hygiene practice of the school (Tsangaya) and the children is devastating. This situation is more worrisome as the whole world is emphasizing on the sustainability of WASH services for all.

Method

The research design of the research was descriptive survey research design. The area of research was Maiduguri metropolis and environs and the population of the research are pupils, parents and teachers of Tsangaya schools. A sample size of 388 were randomly selected from 21 wards of Maiduguri and environs. A self-constructed questionnaire was translated to (Hausa and Kanuri) where necessary and administered to 388 respondents, where 382 was retrieved. The data obtained was analyzed using Microsoft Excel 2019.

Results

The research findings depict about 90% of the respondents opted that the WASH challenges bedeviling informal schools (Tsangaya) are enormous and can lead to diseases outbreak, stunted growth, hinder future skills generation, poor learning ability, and it may as well factor to social rejection. The findings also indicated 90% responses of the respondents decided that restructuring of the Tsangaya system with adequate infrastructure, provision of adequate safe water supply, adequate WASH facilities, awareness sessions on the importance of safe WASH practice via all possible channels and adequate funding by both government and relevant stakeholders.

Conclusion

The current WASH practices at Tsangaya schools in Maiduguri and environs is upsetting. The study recommended government to re-strategize and restructure the Tsangaya system of education, by profiling the number of pupils, teachers, and infrastructure, address the unhygienic situation of the pupils, enforce parents to enroll their children to primary schools, allocate reasonable budget and adequate WASH facilities and support sanitation and



hygiene awareness programs via all possible medium across Maiduguri and environs.

Key words: Tsangaya, Almajirai, Hygiene Practice, WASH.

INTRODUCTION

Access to basic water, sanitation and hygiene (WASH) facilities is fundamental to health and the general public at large. It appears that in most developing countries, very little progress has been made in upgrading WASH approaches towards individual health and the general public (Adewole, 2020). Safe WASH practice plays a greater role in human development and is the foundation for a sustainable growth and development (Ssemata *et al.*, 2023). The impact of WASH practice among children is of highly significance to an extend lack of it usually led to outbreak of disease and school absenteeism (Singh, 2020). Proper WASH management at schools (Tsangaya) helps children in achieving goals, human development and it is only possible through adequate provision of safe WASH practice and education, by so doing, levels of quality and productivity are enhanced (Abdulkadir, 2021). Every developed nation directly or indirectly invests heavily on water sanitation and hygiene so as to ensure not only healthy population growth but to an extend safe environment sustainably (Matta, *et al.*, 2022).

Childhood development is the key to a full and productive future progress of a nation, and is a critical stage of human development that forms the foundation for children's future well-being, development and learning (Okoh *et al.*, 2020). Research has shown that half of a person intellectual capacity is developed before the age of six and early water sanitation and hygiene interventions can have a lasting effect on intellectual capacity, personality and social behaviour (Okoh *et al.*, 2020). Biologically, a child is generally any individual that is between birth and

puberty (Hornby, 2022). The outcome of lack of adequate WASH practice to any form of school formal or informal are obvious for children and the general society as well as the environment. Children boarding schools with poor WASH facilities, hygiene, sanitation and lack of adequate water supply are usually exposed to deadly diseases (Roszkowska, 2020).

In spite of the associated benefits of adequate WASH provision in schools, available studies have shown that a significant proportion of schools globally and especially in developing countries lack adequate WASH services (Ohwo, 2019). For example, global baseline report on drinking water, sanitation and hygiene in schools, revealed that an estimated 570 million, 620 million and 850 million, children worldwide lacked a basic service and had either limited or no drinking water, sanitation and hygiene services at their school, respectively (UNICEF, 2019). Sub-Saharan Africa is the region with the highest proportion of schools with no water service (47%) and less than 50% coverage of basic sanitation and hygiene, which has the capacity to slow down learning outcomes of children in sub-Saharan African schools (Poague *et al.*, 2022).

The essential WASH component revolves around treatment and safe storage of water at the point of use, ideal hand washing (method and timing), Safe sanitary disposal of human faeces at the household and community level, which include collection, transports, disposal, treatment and reuse (Poague, 2022). This practice will ensure the availability of adequate clean water supply not drinking, but also



for food production such as crops, horticulture, poultry, livestock and income generating activities, healthy individual, healthy environment and will encourage school attendance (Dickin *et al.*, 2023). Proper management of the components will also require changing behaviours related to feeding and child care, and having access to and correctly using safe drinking water, hygiene, and sanitation services (Medlicott, 2020).

The standards for WASH in schools were used as the guiding principles to evaluate the adequacy of the various WASH components (UNICEF, 2011). Even though, effort has been made by government agencies, local organizations and NGOs to increase access to safe water supply and sustainable sanitation in major informal schools in Maiduguri; by supporting the provision of improved water sources and sanitation facilities (Dickin *et al.*, 2023). Nevertheless, large numbers of both formal and informal schools still lack access to adequate WASH facilities such as water supply, latrines and hand washing facilities. School sanitation and hygiene education have been given prominence in the Total Sanitation Campaign, which recognizes the role of children in absorbing and popularizing new ideas and concepts (Aniruddh *et al.*, 2021). Globally, it is recognized as a key intervention to promote student's right to health and clean environment which would influence a change in health promotion, behaviour and attitudes (UNICEF, 2018).

The curriculum of tsangaya education can be traced back to the Timbuktu Islamic education system (Rohman *et al.*, 2025). The Tsangaya system of education has three sessions; in the morning, afternoon and evening (Rohman *et al.*, 2025). The school week usually begins on Saturday and ends Wednesday, while School goes on break in Ramadan, the 9th month of the Hijr (Islamic) Calendar and on the Eid

Adha and Eid Fitr "religious holidays celebrated by Muslims worldwide" (Rohman *et al.*, 2025). According to studies conducted by Hussaini on Role of Qur'anic Recitation Competition in Promoting the Study of Qur'anic Sciences in Nigeria: Reflections on Bauchi Metropolis, there are two forms of Qur'anic schools nowadays: modern Qur'anic and traditional Qur'anic Tsangaya" (Hussaini, 2020). The latter is a day school which runs classes for a fixed time in a school-like building and the former a boarding school whose focus is purely Qur'anic instruction (Hussaini, 2020).

The Federal Government kicked off the „Almajiri" educational system in various parts of Nigeria, but official figures and available facts show a yawning gap in the level of implementation and generation of the schools (Idriss *et al.*, 2017). The regulator of the sector, the Universal Basic Education Commission (UBEC) declared that the new education concept, which integrates Qur'anic and Western Models of Education had successfully taken off in no fewer than 22 states of the Federation (Idriss *et al.*, 2017). It was learnt that some of the schools listed under the scheme by UBEC were Arabic or Islamic Schools, which preceded the Almajiri schools (Idriss *et al.*, 2017). Although, some of the schools have been completed, they were yet to begin full academic activities, leading to the massive infrastructure put in place lying idle (Idriss *et al.*, 2017). The Tsangaya schools in Borno State are yet to start full operation, as the state Government and the SUBEC said the Tsangaya schools operate under three (3) Models in the State (Idriss *et al.*, 2017). The first model one, which has to do with existing „Tsangaya" that have accepted to be integrated, and these include the one in Mashimari, Maiduguri and Shehuri-north, each of the Tsangaya are said to have more than 200 children (Idriss *et al.*, 2017).



In most Nigerian cities Maiduguri included, the effects of poor access to improved safe water supply, adequate sanitation and hygiene facilities are enormous, especially in majority of the formal and informal (Tsangaya) schools. Apart from disease burden usually associated with poor access to sanitation and hygiene, there are a lot of pressures on the existing social services particularly water supply which are often stretched beyond design capacities leading to increased overhead costs for operation and maintenance and eventual failure of the systems (UNICEF, 2020). Similarly, Insufficient safe WASH services negatively affect children's boarding informal schools' health and well-being, increase the rate of school absenteeism, poor cognitive performance and growth retardation (Matta, *et al.*, 2022). Generally, inadequate WASH services in schools often times lead to dehydration, diarrhea, worm and urinary infections. Diarrhea and worm infections are the major health burdens amongst school children, which have been associated with poor WASH services (Matta, *et al.*, 2022).

This calls for greater attention to WASH services beyond the household, including institutional settings such as formal and informal schools (Tsangaya) included. Global efforts towards education for all recognize the role that WASH in schools plays an improving access to education and learning outcomes (Ridge, 2019). Tsangaya schools in Maiduguri and environs were suspected to be in an unhygienic state, looking at the fact that the children boarding the school were always in an unhygienic condition. In view of the above challenges this research assessed the WASH gaps in informal schools (Tsangaya) in Maiduguri metropolis, Borno State Nigeria, to ascertain the scale of the problem so that workable intervention can be developed to tackle the challenges sustainably.

As the population of Maiduguri and environs increases, the number of out of formal school children is drastically increasing (ICRC, 2021). The sanitation and hygiene practice of the pupils boarding informal schools (Tsangaya) is devastating (Lateefat *et al.*, 2019). The children were often sighted going about in an unhygienic state. This situation is more worrisome as the world is emphasizing on the sustainability of WASH service for all. It is against this backdrop that this research seeks to investigate the sanitation and hygiene practice of informal school (Tsangaya) in Maiduguri and environs.

In view of the forgoing, the research seeks to address the questions; what are the level of knowledge of consequences of poor hygiene practice of Tsangaya schools? the factors responsible for poor sanitation and hygiene practice? And the possible solution to the WASH challenges among Tsangaya schools children in Maiduguri and environs? The research aims to examine the level of knowledge of consequences of poor hygiene practice, the factors responsible for poor sanitation and hygiene practice and ascertain the possible solution to the WASH challenges distressing Tsangaya schools children in Maiduguri and environs.

Methods

Study Area

The area of research was Maiduguri metropolis and environs, Borno State, Nigeria. The word "Tsangaya" is espoused from Sangaya in Kanuri which simply means "educational institution" (Yahya, 2018). Yahya opined that Sangaya is the original name but due to Hausa adulteration of the term, it became Tsangaya (Yahya, 2018). Tsangaya is also commonly referred to as Almajiri Education System. As aforementioned, tsangaya is a Qur'anic schooling system that is predominant amongst the Muslim of Northern Nigeria. Tsangaya education is



an Islamic based system of education, where the history of Qur'anic schools were traced back to the earliest days of Islam (Yahya, 2018). Traditionally, the pupils of tsangaya are called almajirai. Almajirai (students boarding Tsangaya Schools) are classified into three namely "Kolo; an infant of age 2 -11 years, Titibiri; an adolescent of age 12 -18 years and Gardi; an adult of age 18 and above (Abdulkadir, 2021). Tsangaya system of education is informal; however, it has its distinct "formal code for recording religious learning" (Hussaini, 2020). This format includes Babbaku (alphabet reading), Farfaru (word formation), Haddatu (memorization), Sauka (completion), Satu (writing on a slate), and Rubutu (writing on paper)" (Hussaini, 2020).

Research Design

The research design of the research was descriptive survey research design. Descriptive survey research, design is used to obtain information concerning the current status of the phenomena and to describe what exists with respect to variables or conditions in a situation (Choiriyah, 2022).

Research Population

The population of a study refers to the entire set of individuals or objects, having some common characteristics (Krishnan, 2025). The population of the research are pupils boarding in tsangaya school (males) within the ages of 5-16 years, parents and teachers of Tsangaya schools in Maiduguri and environs.

Sample Size Calculation

A sample size of 388 were randomly selected from 56159 population of 21 wards of Maiduguri and environs using Microsoft excel 2019 random number system of calculation (Primary Health-Care Unit MMC and Jere LGA, 2023).

Inclusion and exclusion Criteria

The names of the schools (Tsangaya) visited were anonymous due to lack of approval by the school's heads to reflect in the research. The research considered the inclusion of students, teachers and parents boarding Tsangaya schools. Tsangaya students roaming the streets of Maiduguri and environs were excluded due to lack of actual identity of the schools (Tsangaya) they belong to.

Sampling Techniques

Simple random sampling is a widely utilized sampling method in quantitative studies with survey instruments. It is asserted that simple random sampling is favourable in homogeneous and uniformly selected populations. In this selection method, all the individuals have an equal opportunity to participate in the research where the selection process is entirely based on luck. The simple random sampling has benefits and drawbacks associated with it. It ensures unbiased, representative, and equal probability of the population; on the other hand, it can be cumbersome, rarely supported with readily available list of population, and challenging when population is heterogeneous and widely dispersed. Therefore, Simple random sampling technique was adopted and utilised using Microsoft excel randomization number (Noor, 2022).

Research Instrument

A self-constructed questionnaire was used as an instrument of data collection. The questionnaire was administered to the 388 comprising children, parents and teachers of Tsangays schools in Maiduuri and environs. The questionnaire is written in English and translated to the two major public language (Hausa and Kanuri) where necessary at the point of administration.



The instrument comprises of four sections from A-D, containing questions related to demography of the respondents, consequences of poor hygiene practice, factors responsible for the poor sanitation and hygiene practice and on the possible solutions to the WASH challenges at Tsangaya schools in Maiduguri and environs. Out of 388 administered questionnaires within a week Monday to Friday, 382 was retrieved.

Data Analysis

The data obtained was analysed using Microsoft Excel 2019 by means of frequency counts, percentage and

description of the demographic characteristics of respondents.

Ethical Consideration

This research adhered to all ethics by ensuring all sources were cited appropriately. Heads of Tsangaya schools and respondents were briefed on the significance of the research before data collection. Permission was granted by the heads of Tsangaya schools visited and the respondents. The data obtained was used solemnly for the purpose of the research and were handle with utmost confidentiality.

Results

The presentation of the data is built on the responses of the respondents and the data are all tabulated in percentage for basic interpretation. Below are the tables and their interpretation accordingly.

Table 4.1 depicted majority of the respondents were children (n=189, 63%) followed by teachers (n=137, 36%) and parents (n=56, 15%). The results further showed reasonable number of the respondents were within the age-bracket 5 to 16 (n = 207, 54%), 18 to 25 (n = 58, 15%), 30 to 45 (n =74, 19%), and 45 and above (n =43, 11%). The outcome also showed reasonable number of the responded were male (n=302, 79%) and (n = 80, 21%) were female. The findings further showed (n=263, 69%) of the respondents were singles, (n=73, 19%) happens to be widows, (n=39, 10%) married and (n=7, 2%) divorced. The academic qualification of the respondents where (n=334, 87%) Islamic Education, (n=27, 7%) Secondary, (n=11, 3%) NCE/Diploma, (n=7, 2%) Degree/HND and (n=3, 1%) masters and above.

Table I: Socio-demography of the respondents

S/n.	Items	Responses	Sum of Frequency	Average of Percentage
1.	Status	Parent	56	15%
		Teacher	137	36%
		Child	189	63%
	TOTAL		382	100%
2.	Gender	Male	302	79%
		Female	80	21%
	TOTAL		382	100%
3.	Age	5-16	207	54%
		18-25	58	15%
		30- 45	74	19%
		45- and Above	43	11%



4.	TOTAL		382	100%
	Marital Status	Single	263	69%
		Married	39	10%
		Divorced	7	2%
		Widow	73	19%
5.	TOTAL		382	100%
	Academic Qualification	Islamic Education	334	87%
		Secondary	27	7%
		NCE/Diploma	11	3%
		Degree/HND	7	2%
		Masters and Above	3	1%
	TOTAL		382	100%

This section table 2 was on the consequences of poor hygiene practice of Tsangaya schools in Maiduguri and environs, where the respondents view was obtained. The views of (n=367, 96%) of the respondents agreed that the implication of poor hygiene practice at Tsangaya schools would lead to diseases outbreak while only (n=15, 4%) disagree. Also, (n=344, 90%) respondent yes that poor hygiene practice will results to stunted growth and development of children, while (n=38, 10%) disagree. Similarly, (n=346, 91%) responded yes that inadequate hygiene practice would likely hinder well skills future generation where (n=36, 9%) only responded negative. Improper hygiene practice may as well affect learning ability, about (n=373, 98%) agreed to that where only (n=9, 2%) disagree. Furthermore, on social rejection, low self-esteem (n=359, 94%) of the respondents answer yes while (n=23, 6%) respondents disagree.

Table 2: Knowledge of Consequences of poor hygiene practice of Tsangaya schools in Maiduguri and Environs

S/N	Items	Response	Sum of Frequency	Average of Percentage
1	Diseases outbreak	YES	367	96%
		NO	15	4%
		TOTAL	382	100%
2	Stunted Growth and Development	YES	344	90%
		NO	38	10%
		TOTAL	382	100%
3	Lack of Adequate and Appropriate Manpower in the Future.	YES	346	91%
		NO	36	9%
		TOTAL	382	100%
4	Lack of Adequate Learning ability	YES	373	98%
		NO	9	2%
		TOTAL	382	100%
5	Social Rejection, Low confidence and Low Self-esteem	YES	359	94%
		NO	23	6%
		TOTAL	382	100%



Table 3 showed section C which is on what are the factors responsible for the poor sanitation and hygiene practice of Tsangaya schools in Maiduguri Metropolis in Maiduguri and environs. The respondents view on Lack of WASH facilities and poor infrastructure, (n=372, 97%) response was yes while (n=10, 3%) response was negative. Again, on Poor WASH awareness (n=339, 89%) agreed while (n=43, 11%) disagree. Over population of pupils as a factor (n=369, 97%) agreed and (n=13, 3%) disagree. On Lack of funding by government and parents (n=379, 99%) response was yes while (n=3, 1%) response was no. Additionally, on inadequate water supply the answers to the respondents depicted (n=341, 89%) agreed while (n=41, 11%) response was disagree.

Table 3: factors responsible for poor sanitation and hygiene practice among Tsangaya School children

S/N	Items	Response	Sum of Frequency	Average of Percentage
1	Lack of WASH facilities and poor infrastructure	YES	372	97%
		NO	10	3%
		TOTAL	382	382
2	Poor WASH awareness	YES	339	89%
		NO	43	11%
		TOTAL	382	382
3	Over population of pupils	YES	369	97%
		NO	13	3%
		TOTAL	382	382
4	Lack of funding by government and parents	YES	379	99%
		NO	3	1%
		TOTAL	382	382
5	Inadequate water supply	YES	341	89%
		NO	41	11%
		TOTAL	382	382

Table 4 relates on the possible solutions to the WASH challenges at Tsangaya schools in Maiduguri and environs. Where on Provision of adequate WASH facilities at all the Tsangaya schools as solution (n=367, 96%) responded yes while (n=15, 4%) said never. The respondents view on Provision of adequate safe water supply (n=349, 91%) response was yes and (n=33, 9%) disagree. The view on awareness sessions on the importance of safe WASH practice via all possible channels, the response showed (n=373, 98%) agreed while (n=9, 2%). Also, on restructuring of the Tsangaya system with adequate infrastructure (n=287, 75%) response was yes and (n=95, 25%) was no. furthermore, on adequate funding by both government and parents should be enforce the respondents view was (n=329, 86%) while (n=53, 14%) responded views depicted disagree.

Table 4: the possible solution to WASH challenges among Tsangaya schools children in Maiduguri and environs.

S/N	Items	Response	Sum of Frequency	Average of Percentage
1	Provision of adequate WASH facilities at all the Tsangaya schools	YES	367	96%
		NO	15	4%



	TOTAL		382	382
2	Provision of adequate safe water supply	YES	349	91%
		NO	33	9%
	TOTAL		382	382
3	Awareness sessions on the importance of safe WASH practice via all possible channels	YES	373	98%
		NO	9	2%
	TOTAL		382	382
4	Restructuring of the Tsangaya system with adequate infrastructure	YES	287	75%
		NO	95	25%
	TOTAL		382	382
5	Adequate funding by both government and parents should be enforce	YES	329	86%
		NO	53	14%
	TOTAL		382	382

Discussion

The outcome of the research revealed 54% of the respondents were within the age of 5-16 and the highest which indicate that the children were the most affected by the sanitation and hygiene challenges. The findings also showed 69% of the respondents were single and opportunely, about 3% of the respondent had attended secondary education, 2% with NCE/Diploma and 1% with masters and above. However, 87% of the respondents settled for Islamic education and did not attend western education. This also indicated the low western educational attendance that is very important in this 21st century.

The research findings on the knowledge of consequences of poor hygiene practice of Tsangaya schools in Maiduguri and environs showed majority of the about respondents agreed that the implications of poor hygiene practice are enormous and can lead to diseases outbreak 96%, 90% will lead stunted growth, 91% will hinder future skills generation, 98% will lead to poor learning ability and 94% will may as well factor to social rejection with. This finding is not surprising because majority of the schools visited lack basic sanitation and hygiene facilities and most importantly there is a serious challenges of inadequate water supply. The findings

corresponded with research conducted by (Cheurfa *et al.*, 2020) on Cost-effectiveness of Water, Sanitation and Hygiene (WASH) promotion approaches used in basic schools in Ghana which revealed about 75% of the secondary schools lack adequate water supply, sanitation and hygiene facilities forcing the pupils and teachers to practice open defecation outside or on the floor of the toilets. Similar research conducted by Cronk, (2021), on the factors associated with water quality, sanitation, and hygiene in rural schools in 14 low-and middle-income countries indicated 52% of surveyed schools used closes water quality compliant with WHO guidelines for E. coli.; while 73% of the schools were in a state of poor hygiene practice. According to (Dakhode *et al.*, 2021) Safe drinking water, sanitation and hygiene beyond the household, and particularly in the school setting, are crucial to the health and education of children. Accordingly, if the challenges of water sanitation and hygiene happening in formal schools that are being funded and well-structured by government is worsening. Then, the situation in informal schools especially Tsangaya that has less government presence will be worse than the formal. Therefore, the findings of the research at table 2 are of highly health consequence not only to the children but to the general public at large.



The outcome on Table 3 is indicating about 90% of the respondents were of the view that that inadequate water supply 89% couple with lack of WASH facilities and poor infrastructure 97%, lack of WASH awareness sessions 89%, over population of pupils 97%, and lack of funding by government and parents 99% will have a great impact on the children health as well as their teachers and to an extend to their parents and the general public as well. The findings are similar to research carried out in public secondary schools in Maiduguri metropolis, which shows more worrying coverage of hygiene practice by the school children where 70% of the schools had a limited hygiene service (Lateefat *et. Al.*, 2019). Another similar disquieting research carried out by (Abubakar, 2023) on Assessment of WASH Program in Public Secondary Schools in Maiduguri metropolis revealed (75%) of the schools were overcrowded and with very poor hygiene practice, especially the toilets. Many of the pupils in public secondary schools visited were not enlightened on the importance of hygiene education and attitudes towards regular practices concerning water, sanitation and personal hygiene (Abubakar, 2023). Correspondingly, according to Poague (2022), the absence of standard toilets with functional doors that can be closed when the toilet is in use means that girls are unable to use those toilets in ways that are dignified, the pit latrine is dark and foreboding, with a musty smell that clung to everything, very scary place which many students avoid at all costs (Poague, 2022). This is a clear indication that lack of proper hygiene practice in both formal and informal education system has a great negative impact on the future generation health and will bring about learning difficulties and absenteeism.

The findings on Table 4. depicted that 96% of the respondents decided that provision of adequate WASH facilities at all the Tsangaya schools will ease the

WASH challenges, 91% agreed on the provision of adequate safe water supply as factor, 98% go for awareness sessions on the importance of safe WASH practice via all possible channels, 75% settled for restructuring of the Tsangaya system with adequate infrastructure and 86% agreed on Adequate funding by both government, non-governmental organizations, civil society organizations and relevant bodies will help in addressing the WASH issues in the Tsangaya schools. The findings to questions indicated that all the items were factors on the possible solutions to the WASH challenges of Tsangaya schools in Maiduguri and environs.

These identified challenges are possible reasons for the poor state of WASH in the informal schools (Tsangaya) which can be link to lack of implementations of the regulations guiding the affairs of the Tsangaya Schools, puberty, displacement of persons of concerns due to insecurity, poor parental care, poor budget allocations from government. The WASH sector is given less consideration by government at all level with weak monitoring systems, limited evidence-based data collection and documentation which are important for improving the WASH programs. Therefore, to maximize the potential of pupils (Almajiri) as the most vulnerable child, it is necessary to provide informal schools (Tsangaya) pupils and teachers, with adequate WASH facilities and educate them properly on the challenges and negligence of the WASH to their health and the general public. Adequate WASH services in schools are a precondition for creating a healthy environment for children. Since students spend the majority of their time at school, safe WASH services can improve their overall health by preventing waterborne and infectious diseases (WHO, 2023). Additionally, WASH services can improve academic performance by reducing absenteeism due to illness and allowing students to focus on their studies without



distractions related to hygiene concerns (Pieters, 2023). In view of the above wide-ranging findings of the research which shows the water sanitation and hygiene challenges of the informal schools (Tsangaya) in Maiduguri and environs is in a critical state. Government at all level in synergy with teachers and parents must take serious measures by addressing the identified gaps so as to put an end to WASH challenges and for a better upbringing of future generation.

Conclusion

In conclusion, the present state of WASH facilities in all the informal schools Tsangaya in Maiduguri and environs are in a devastating situation mainly due to poor educational structure, inadequate water supply, lack of sanitation and hygiene awareness session. The research findings on the consequences of poor hygiene practice of Tsangaya schools in Maiduguri and environs indicated about 90% of the respondents agreed that the implications of poor hygiene practice are enormous and can lead to diseases outbreak, stunted growth, hinder future skills generation, poor learning ability, and it may as well factor to social rejection. The research outcome showed the consequence of poor hygiene practice in Tsangaya schools in Maiduguri and environs.

The findings also indicated the possible solutions to the WASH challenges bedevilling informal schools (Tsangaya), where about 90% respondents agreed on restructuring of the Tsangaya system with adequate infrastructure, provision of adequate safe water supply, adequate WASH facilities, awareness sessions on the importance of safe WASH practice via all possible channels and adequate funding by both government and relevant stakeholders. The water sanitation and hygiene challenges of the informal schools (Tsangaya) in Maiduguri and environs is in a life-threatening state. Government,

teachers and parents must take serious measures and may as well implement the recommendations made so as to put an end to WASH challenges and for a better upbringing of future generation.

Strength of the Research

The research focuses on the water sanitation and hygiene challenges in Tsangaya informal schools in Maiduguri and environs and findings were made as well as recommendations which if implemented will address the identified WASH gaps sustainably.

Limitation of the Research

This research is limited to water sanitation and hygiene challenges in Tsangaya informal schools and the students, teachers and parents of the Tsangaya informal schools within Maiduguri Metropolis and environs, Borno State, Nigeria.

Recommendation

Based on the findings of the research, the following recommendations were made.

- Government at all level should re-strategize and restructure the Tsangaya system of education, especially on profiling the number of pupils, teachers, and infrastructure similar to how it is been done to western education system in Maiduguri and environs.
- Government in synergy with relevant stakeholders should enforce parents to enroll their children and ward to primary schools in conjunction with the Tsangaya education.
- Government at all level should allocate reasonable budget and adequate WASH facilities at all Tsangaya schools in Maiduguri and environs.
- Governments should liaise with relevant stakeholders, such as parents, teachers, civil society organizations, non-governmental organizations, security, WASH sector in addressing the unhygienic situation of pupils (Almajirai) of Tsangaya



school rooming the streets, begging alone junctions and motor packs and defecating openly.

- Government should support sanitation and hygiene awareness programs via all media stations and reach out to Tsangaya schools across Maiduguri and environs.

Conflict of Interest

We declare no conflict of interest regarding the publication of this research paper titled “Assessment of Water Sanitation and Hygiene Practice of

Tsangaya Schools in Maiduguri and Environs.”

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