AMERICAN JOURNAL OF
ARTS AND HUMAN SCIENCE (AJAHS)
ISSN: 2832-451X (ONLINE)
VOLUME 2 ISSUE 1 (2023)

PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA

American Journal of
Arts and Human Science (AJAHS)

Volume 2 Issue 1, Year 2023
ISSN: 2832-451X (Online)
DOI: https://doi.org/10.54536/ajahs.v2i1.1158
https://journals.e-palli.com/home/index.php/ajahs

Portable Water Sources in Rural Communities the Experience of Togmaa Community in the Wa West District

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Article Information

Received: January 4, 2023

Accepted: February 07, 2023

Published: February 13, 2023

Keywords

Rural Water Supply, Provision, Government, Capacity, Sustainability & Diseases

ABSTRACT

Surface waters are the main drinking water source for many rural communities in Ghana including Wa West District and Togmaa in particular. The water crisis in Togmaa is a threat to quality sanitation and health in the community. This necessitated the study. A case study approach enabled the researchers to delve much into the phenomenon under study. The methodology included the use of a mixed-method approach (qualitative and quantitative). The sampling technique used was simple random and purposive sampling. A semi-structured interview guide was used to gather data from 39 households as sampled for the study. Key informant interviews were also used to gather data from chiefs, assemblymen, Magazia (women leader) and the Wa West District Assembly. The study also used observation to observe the water sources in the community. Data gathered from Semi-structured interviews were coded and entered into the SPSS to generate results and presented in Microsoft word using pie charts, bar charts and tables. With the qualitative data using Key Informant Interviews were transcribed and classified under themes with quotes from respondents. The results and conclusions from the study revealed that Togmaa community lack a portable water source compelling resident to drink from polluted pounds; it was also found that community members' enthusiasm to contribute to a borehole facility is thwarted by the poor household income status. Other findings revealed that the people of Togmaa believe the Government of Ghana has the main responsibility to provide them with a water facility, even though they are also willing to contribute their human resource and meagre incomes towards getting a befitting water facility.

INTRODUCTION

The social impact of Rural Water supply activities involves the distributional impact of Rural Water Supply programs on the well-being of different stakeholder groups, focusing on the poor and vulnerable in the communities. Those in charge of rural water supply systems need to implement projects with the right incentives to achieve full participation of men, women, minorities and the poor. With improved water and sanitation services, there is a threat to reduce consumption, especially by the poor, due to payment for improved services. The poor may resort to unsafe sources to avoid payment for water (GoG, 2010).

Providing safe drinking water in rural areas is a major challenge because it is not easy to establish institutional arrangements to ensure that drinking water facilities are provided, maintained, and managed efficiently, equitably, and sustainably (Asante, Birner and Yan, 2010). Providing safe drinking water in rural areas is subject to both market and government failures. The private sector also does not usually have sufficient incentives to invest in rural water supplies due to the high costs of infrastructure development in areas with low population density and the high transaction costs of collecting fees for drinking water in such areas, especially if the awareness of the value of safe drinking water is limited and if people can easily resort to other (although unsafe) water sources (Asante, Birner and Yan, 2010).

Even though the country has adopted the community-based approach to the provision of rural water, communities are not always involved fully in all the stages of water provision (World Bank, 2008). The Water and Sanitation Committees in the communities (WATSAN) in the districts are hardly involved in the choice of contractors in charge of establishing drinking water facilities (World Bank, 2008). They, therefore, do not have adequate opportunities to express discontent with the contractor's work when they observe problems.

Responsibility for monitoring drinking water quality in rural areas remains unclear. For now, the Community Water and Sanitation Agency (CWSA, 2007) has undertaken this. Water quality tests are done before the commissioning of facilities based on standards set by the Ghana Standards Authority (Aquaya, 2020). The difficult hydrogeological situation and problems associated with water quality in some parts of the country particularly the Northern part of Ghana raise concern for increasing access in those regions (GoG, 2010).

Government support to the rural water supply sector has traditionally focused on designing and constructing systems based on prescribed needs. These needs are usually linked to perceived health improvements and give little consideration to the demand for or sustainability of services (GoG, 2010). Furthermore, governments and donors often end up supporting projects within the same community without any coherent strategies (Awuah

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et al, 2009). Roles for project planning, implementation, cost recovery, operations and maintenance (O&M) and asset ownership are poorly defined and communicated (MLGRD, 2009). However, since most rural and peri-urban communities are not connected to treated surface water, groundwater that is derived from boreholes is common (CWSA, 2007). Most rural communities are vulnerable and still resort to drinking water from open sources given the lack of borehole facilities (WHO, 2012). By and large, water quality from these sources proves grossly poor (World Bank, 2004). Due to drinking contaminated water, diarrheal disease is the third most commonly reported illness at health centres across the country and 25% of all deaths in children under the age of five are attributed to diarrhoea (Van Rooijen, 2009). The majority of waterborne illnesses are enteric diseases (i.e. intestinal diseases) transmitted through the faecal-oral route. In the transmission pathways of disease through water contamination, human faeces from public defecation end up in water sewages and non-recycling latrines, which are then collected in the local surface waters by rainfall and ingested by local inhabitants through direct exposure, absorption, and ingestion (Awuah, 2009).

Although the government of Ghana has established Ministries and Agencies to ensure water supply in the rural communities, coupled with the huge government expenditure on the provision of water in the rural areas, the situation does not seem to improve, as most rural communities in the Upper West Region including those in the Wa West District still obtain their water from open sources. This study explores the lack of potable water sources in Togmaa community and the experiences of the households as well as analyzing the community's adaptive capacity to acquire potable water for their own use. The vulnerable of community members is further compounded by climate change, which makes water more scarce through droughts and extreme temperatures (UN, 2020) and more unpredictable and polluted water sources (UN, 2020). The lack of water sometimes leads to violent conflicts between community members and Fulani herdsmen who compete with them for the limited amount of water causing social insecurity and worsening the already precarious economic position of the people in the Togmaa community (Akudugu and Alhassan, 2012).

The study therefore aims to proffer solutions by answering these research questions

- What is/are the household water sources and use within the Togmaa community?
- What is the people's capacity of Togmaa to acquire a potable water supply system?
- What are the possible sources of obtaining portable water facilities for the community?

LITERATURE REVIEW

Rural Water Supply in Ghana

Globally, the need for water cannot be overlooked. WHO (2009) indicated the lack of safe drinking water has become a major concern for most developing countries. WHO (2009) reported that more than 3.4 million people die each year from water, sanitation, and hygiene-related diseases as a result of poor quality. Closely all deaths, 99 percent, occur in the developing world (WHO 2009). The report further estimates that 780 million people lack access to improved water sources; about one in every nine people. The water and sanitation crisis claims more lives through disease than any war claims through the gun (WHO, 2009). The same report from WHO has stated that women spend more than 200 million hours a day collecting water thereby hampering their productive hours (WHO, 2009).

In Ghana, the mandate of the National Community Water and Sanitation Agency (NCWSA), a body responsible for providing rural and small town water has consistently failed to meet projected targets. Despite a marginal increase in water coverage, there has been a consistent declining trend in meeting targets (CWSA, 2012). The reports show that rural water coverage increased from 27% to 30 % in 1999 and further expanded to 46.3% in 2003 and 51.1% and 51.9% in 2004 and 2005 respectively and increase to 64% from 2012 to 2014 and slightly t0 65% in 2015 (MoTI, 2020). Notwithstanding this, access to potable water remains a challenge in rural Ghana. About 20 million Ghanaians (predominantly those in rural areas and small towns) are within the operational area of Ghana's Community Water and Sanitation Agency (CWSA) (MoTI, 2020)

The CWSA (2012) indicated that rural water coverage in Ghana is far below the sustainable levels needed to curb the high incidence of water-related diseases. The Ministry of Health shows that water-borne diseases are among the top reported cases in Ghana. Malaria, Guinea Worm infestation, typhoid fever, diarrhoea and hepatitis are among the prevalent cases (Ministry of Health, 2010). Most rural people in the Upper West Region rely on surface water sources, which frequently contain life-threatening parasites and high microbial content. In some communities, the water has significant discoloration and contains dangerous minerals (Metwally, *et al*, 2006). During the dry season, many areas suffer from water scarcity. This equally contributes to the inadequacy of access to safe drinking water among rural dwellers in the Region (Ahmed, 2006).

METHODOLOGY

The Wa West District is one of the 11 Municipalities and Districts in the Upper West Region. The total population of the Wa West District is estimated at 81, 348 representing 11.6% of the total population of the Upper West Region (GSS, 2012). The Wa West District has 40, 227 (49.5%) people being Males with 41, 121 (50.5%) people being females (GSS, 2012). The District population has a broad youthful base with aged groups 0-4, 5-9, 10-14, and 15-19 being the majority of the District population (GSS, 2012). The District is situated in the Western part of the Upper West Region, roughly between Longitudes 9º 40′ N and

10º 10' N and between Latitudes 2º 20 W and 2º 50' W. It shares boundaries to the South with Savannah Region, North-West by Nadowli District, East by Wa Municipal and toward the West by Burkina Faso (GSS, 2012). The Wa West District has a landmass of 1,856 square km, (GSS, 2012).

The study community Togmaa is under the Wechiau Area Council of the Wa West District of the Upper West Region. The community has a total population of 317 people. The community was purposefully chosen because it has a youthful population and predominantly engaged in farming food crops and rearing poultry and livestock as their economic activities. The scarcity of potable drinking water sources necessitated it choice since inhabitants are still drinking from open exposing the communities to disease outbreaks.

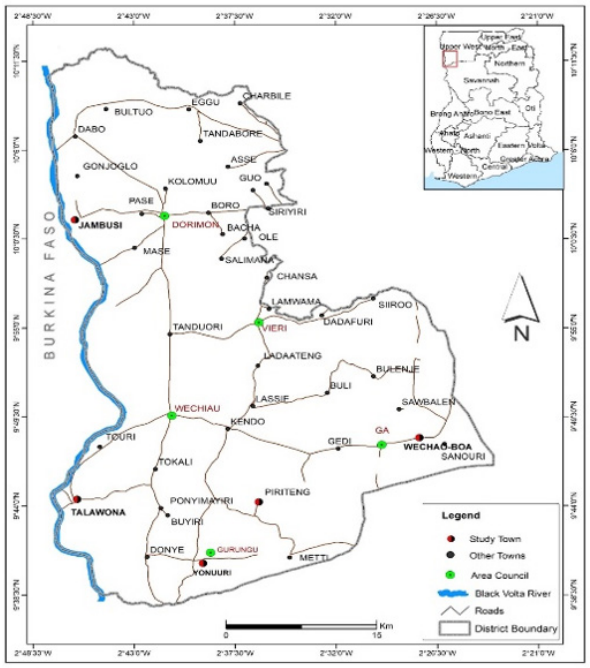

Figure 1: Map of Wa West District
Source: Harmattan Geo-Spatial, 2019

The study adopted the mixed design, a mixture of quantitative and qualitative approaches (Mugenda, 2003). The design was used to guide the study on rural water accessibility in Togmaa community. The mixed method combines the strengths of both methods through triangulation to come out with credible data. The principal idea of using methodological pluralism is to bring about meaning using multiple sources and then employ the use of threading to come out with a theme or themes across the data sets, "to create a constellation of findings which can be used to generate a multi-faceted picture of the phenomenon" (Moran-Ellis *et al.* 2006). The main advantage of using both quantitative and qualitative approaches is that it provides a better understanding of the problem than either approach alone (Creswell and Plano Clark, 2007).

The research design adopted was the case study approach to obtain in-depth knowledge about the water situation in the Togmaa community. Yin (2003, 2014) preferred the strategy because it enables the investigator to ask when 'how' or 'why' question about contemporary set of events, over which the investigator has little or no control.

The quantitative technique was basically used to quantify responses on rural water accessibilities and challenges through a questionnaire. The quantitative data was organized and entered into Statistical Package for Social Sciences (SPSS) version 20. The results were therefore quantified and presented in simple frequencies and percentages. The qualitative techniques, on the other hand, were inductive, holistic, subjective and process-oriented to help understand, interpret and describe information gathered on rural water accessibility. A semi-structured interview guide was used to collect the qualitative data. The semi-structured interview guide contained both open and closed-ended questions. The data was transcribed, then coded manually and categories and themes were generated and used for the analysis. The study sampled 39 households as respondents from the community using Yamini's formula for sample size determination and through simple random sampling respondents were selected..

Key Informant Interview and Observation as a form of purposive sampling technique was also employed to gather data. The Key Informant Interview was used to gather information in-depth information from the chief, opinion leaders, Youth leader, 'magazia' (women leader) and the electoral Area Assemblyman, while an observation checklist was adopted to observe the source of water and household water usability. Furthermore, the study also gathered secondary data. Institutions such as the Environmental Health and Sanitation Unit of the Wa West District Assembly, CWSA- Wa also provided some useful information as the secondary source. This catered on mainly water provision and sanitation issues in the region.

RESULTS

Household Water Source and Use

With regards to household water sources in the Togmaa community, it was revealed that the only source of drinking water was the pond which contained unwholesome water and that to get access to potable water residents had to work several kilometres to neighbouring communities. The study revealed that 92% of respondents say they drink from the pond especially during the rainy season making them susceptible to water borne diseases, while 8% of the households indicated that they trek several kilometres to fetch water from the neighbouring communities, as such they waste productive hours to get water and they also indicated that this affects the education of their children because they have to get up early and get water before they can go to school. The implication is that their children might be backwards in their pursuit of their educational and career development. This is shown in table 1 below.

Responses from key informant interviews also revealed that residents of Togmaa drink from polluted and reptile-

Table 1: Household Water Source and Use

Variables	Household Response	Frequency	Percent (%)
Water source and use	Open Streams/ Pounds	36	92
	Borehole	3	8
Total		**39**	**100**

Source: Field Survey (September, 2021)

infested ponds and dugouts. This was a theme that all the respondents echoed. This indicates that access to potable water is woefully inadequate in the Togmaa community.

An opinion leader who had spent all his life in the community confirmed this by saying that:

Since time immoral we have been drinking this polluted water. Sometimes we feel pain when urinating, women and children often complain of stomach pains. Our case is not a matter of choice; we only have these sources to fetch water for drinking, cooking, bathing and all our domestic activities (Opinion Leader, Togmaa).

In terms of household water use, another key informant added that:

We use this water to bathe, cook food and for our building purposes. Our poultry birds drink from it while we share the stream and ponds with livestock. Sometimes they wade through the water causing more turbidity (KII, Togmaa).

From the observation, it was evident the community members drink from open water sources and this could have a negative bearing on their health by causing water-borne and water-related diseases such as cholera, typhoid, dysentery and others. In fact data from Wechiau Health Facility which is patronised by members of the Togmaa community did indicate that among the ten topmost diseases diarrhoea was leading followed by malaria and dysentery which are all water related diseases.

Figure 1: A dugout after rains as a source of drinking water.

Figure 2: A pound as a source of water engulfed with weeds and algae.

Community Adaptive Capacity to acquire potable water supply facility

The study also examined factors that account for the lack of potable water sources in the Togmaa community. Through Key Informant Interviews we wanted to know what efforts they are making or could make to to provide potable water for themselves, from the responses it was clear that they wished they could do that on their own but being peasant farmers it was difficult for them to mobilize the needed resources. It was revealed that the community water scarcity has been used as political bait during electioneering years. Political parties give unfulfilled promises to provide potable water to them when voted into power but end up neglecting them when they win power.

A woman during the interviews buttress this when she said that

"*When it is time for elections, the political parties will organize a massive rally and promise to construct boreholes in all communities including Togmaa. Sadly, you will never see or hear from them after the election. Even those who will win don't even think about us. We are fed up with promises and our faith now lies in the hands of God*" (KII, Togmaa).

The study further conducted a SWOT analysis engaging local Key Informants on the adaptive capacity analysis of the community's ability to have access to potable water. Details are provided in Table 2.

Source of obtaining potable water supply facility

The study also examined respondents' views regarding the community's need for a potable water facility and how to get it provided. The majority of the respondents, 48%, believed that the government of Ghana through allied agencies such as the Wa West District Assembly, Community Water and Sanitation Agency and Ghana Water Company Limited should provide

Table 2: SWOT Analysis of the Togmaa Community on Portable Water Provision.

Issues	Strength	Weakness	Opportunities	Threats
Community capacity to acquire a borehole facility	√ The willingness of community members to contribute towards a borehole facility	√ Community members have no prudent income source as they are mainly peasants.	√ Presence of Non-Government Organisation (NGOs) supporting the provision of borehole facilities	Cost of raw material for borehole construction
	√ Potentials of community to have an effective WATSAN committee	√ There is the possibility of some community members unwillingness to contribute to borehole construction cost	√ The existence of the District Assembly to supplement the community in the construction of the boreholes as well as provide training for the WATSAN committee members.	
	√ The presence of artisans to be trained as local technicians for maintenance		√ The existence of the CWSA provides support for the community in terms of capacity building.	
	√ Availability of land to construct a borehole facility		√ Experts and borehole construction companies available within the upper West Region	

Source: Field Survey (September) 2021

the community with water facilities, preferably a borehole for a start. Another group of respondents (26%) indicated Non-governmental Organization in the future should extend their humanitarian service to Togmaa, while 5% were of the view that, Togmaa water facility ownership could be realized through philanthropic gestures. Other categories of household respondents (21%) cited self-help initiatives through contributions by community members. Respondents were of the view that the continuous neglect of the community brings to fore the need for community members to take their own initiative to provide a borehole facility for themselves.

An opinion leader had this to say about the neglect of the community

"*Adding up to what has been said, the Government of Ghana and the Wa West District Assembly have abandoned us. We see a lot of boreholes being drilled in other communities to the neglect of Togmaa. We have made frantic efforts to appeal for a borehole and yet nothing has been done about that. We only have to turn our hope and appeal to Non-Governmental Organisations (NGOs) to come to our aid. Maybe that is the only way we can secure a borehole facility*".

Details on strategies for the acquisition of a borehole facility are presented in Figure1 below.

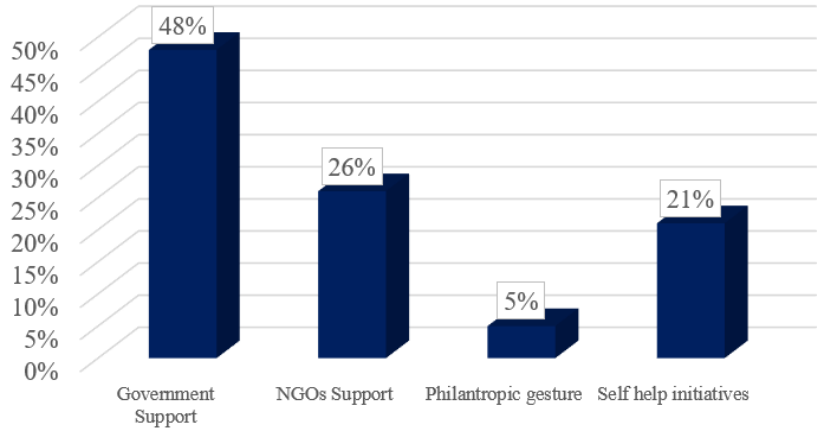

Figure 2: Source of Obtaining Potable Water Supply Facility (*Source: Field Survey, September, 2021)*

DISCUSSION

The study identified three many issues worthy of discussion regarding the water situation in Wa West District and for that matter Togmaa community. The three issues include Household water source and use, community adaptive capacity to acquire potable water supply facilities and source of obtaining potable water supply. These issues are anchored on the fact that Community Water and Sanitation Agency and the Ghana Water Community Limited under the auspices of the

Ministry of Sanitation and Water Resources are given the mandate to provide water to rural, per-urban and urban areas respectfully.

Water sources and use was identified as the first issue which needed attention to understand their source of water and the walking distance to access potable water. Community members trek several kilometres to access potable water at a fee which most inhabitants cannot afford as such resort to the use of the open sources of water which are mostly infested opening them up to various form of water-borne diseases. We found out that drinking from open sources of water has led to certain diseases and this invariably affects productivity of a predominantly farming community.

The result of this we found was the meagre income they gain from their farming activities which is far below the minimum wage in Ghana. The farming is mostly from hand to mouth and might not last them till the next farming season since the northern part of Ghana has a unimodal rainfall pattern. As noted by WHO (2012) most rural communities resort to drinking from open water sources which Togmaa in Wa West District is no exception, the end result of drinking from these open sources are water and hygiene related diseases such as dysentery, typhoid diarrhoea and so many more. In the same vain in consonance with our findings the World Bank (2004) reported that diarrheal disease is the most common reported illness at health centres in Ghana and 25% of children under age five deaths are attributed to diarrhoea (Van Rooijen. 2009). These findings mirror what we identified in Togmaa and Awuah (2009) further reiterating that majority of water-borne illness are enteric diseases transmitted through open defecation which end up in open water sources through faecal-oral route. In view of this there is the need for the CWSA which is mandated to provide rural communities with potable water as a matter of policy to provide the habitants with a borehole to reduce the burden and incidence of diseases. To add to this is the adaptive capacity of the community to acquire its own water facility which the authors examined. With regards to this we found out that political activists have always used the provision of potable water as a bait to win votes from the electorates in the community since the they know the community is vulnerable and cannot marshal the necessary resources to provide their own water facility. In view of this we conducted a SWOT analysis to determine their strength, weakness, opportunities and threats which can hamper their ability to provide for themselves a potable water facility.

From the analysis with the respondents we found out that community members were willing to contribute resources both human from their meagre resources to help finance the provision of borehole for the community, we also found out that there was a Water and Sanitation committee in the Wa District Assembly which can assist the community to effectively manage the borehole if they get one as well train artisans to maintain any facility in the near future. The major weakness we identified was that most of the community members are peasant farmers and the majority might not be able to contribute financially even though they would have wished to. Regarding opportunities, we identified a number of Non-Governmental Organizations operating in the district which the assembly can leverage to assist in providing potable water to the Togmaa community. The district also boost of a number water construction companies which can be used to drill boreholes for water-deprived communities such as Togmaa but a major impediment we identified is the cost of materials to construct these boreholes. We therefore appeal for philanthropic organizations to assist in this direction to alleviate the plight of the people.

The last aspect we delved into was finding out the source of obtaining or getting a water supply facility from the community. The overwhelming response was that government should provide them with the water facility, which is in consonance with the Community Water and Sanitation Agency mandate by law to provide potable water to rural and small towns in Ghana. In this regard we suggest that NGOs, Philanthropist and through self-initiatives the Togmaa community can provide a borehole for its self to alleviate them from their perennial water problems which comes with water borne diseases.

CONCLUSION AND RECOMMENDATIONS

The study reveals that the Togmaa community lacks portable water sources compelling community members to drink from ponds and open sources. The study further reveals that although the community is highly enthusiastic to contribute toward a borehole facility, the lack of adequate income among households could hinder self-help initiatives to own a borehole. Other findings reveal the majority of household respondents (48%) believe the Government of Ghana is duty-bound to provide them with a borehole facility.

Based on the findings of the study, these recommendations could help in addressing the issues:

- There should be a move from over-dependence on any source of drinking water to the conjunctive use from several sources, viz., ground, surface water, and rain water harvesting including recharge/roof water collection. Drinking-Water supply significantly impacts Public Health and the success of sanitation practices. A Co-joint approach between rural water supply and rural sanitation services needs to be focused on in other to help Togmaa have access to portable water supply and sanitary facilities.
- To ensure equitable development, there is the need to focus on developing self-help initiatives for the people of Togmaa to enable them to mobilize resources to build water resources infrastructure such as borehole facilities. Households should, therefore, be actively involved in the community engagement process for a collective action
- Collection issues, improving operational and cost efficiency and installing financial discipline and managerial efficiency for satisfactory operation and maintenance

culture for private, government and or philanthropic-led initiatives of the installed water system (borehole) will help ensure a high sense of ownership. This appeal may resolve the unending water situation in Togmaa.

• The Environmental Health and Sanitation Unit of the Wa West District should focus on training households in Togmaa in terms of water treatments. This will help reduce the presence of Ecoli and other disease-causing organisms in the pond they drink from.

• As part of governments efforts to ensure all year round farming to better the lot of rural dwellers, a community managed irrigation scheme should be constructed to enable them gain extra income during the dry season. This initiative will go a long way to enable them to undertake self-help initiatives to provide potable water for themselves and avoid feuds with herdsmen.

Acknowledgement

Author Contribution Statement

Lukman Tahiru and Jonah Amosah (PhD) conceived the idea of the research, the data tools, collected and analysed data. They as well wrote the paper. Raymond Atiibisa Atanga as well as the other authors interpreted the data. He as well did the proof reading.

Funding Statement

The work was self-funded by the authors

Data Availability

Upon request data will be made available

Declaration of Interest

The authors declare no conflict of interest

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