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Health Risks Associated with Microphone Sharing: A Survey of Awareness, Perception and Preventative Actions among Christian Church Choir Members in Taraba State, North-East, Nigeria

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Abstract

The aim of this study was to investigate the awareness and health actions related to the risks of microphone sharing among Christian choir members in Taraba State, Nigeria. Grounded in the Health Belief Model, the study utilised a descriptive survey design, sampling 225 choir members from 10 randomly selected churches across Taraba State, Northeast Nigeria. Data were collected via online questionnaires and analysed using simple descriptive statistics. The findings reveal a low level of awareness about the health risks associated with sharing microphones. The respondents generally demonstrated a negative perception towards these risks, with many expressing disbelief in the potential for disease transmission through shared microphones. Additionally, there was a notable lack of adherence to precautionary measures. The study found that microphones were infrequently cleaned, microphone foams were rarely replaced, and hand hygiene practices—such as hand washing and the use of sanitiser—were not routinely observed. The use of face masks and shields among choir members was also reported as rare. These findings have significant implications for public health practices within religious

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communities. They underscore the urgent need for increased awareness and education about the potential health risks of microphone sharing. Thus, the study recommends implementing regular cleaning protocols, ensuring the replacement of microphone foams, and promoting personal hygiene measures, including hand sanitisation and the use of face masks or shields during group singing activities. These measures are essential for mitigating health risks and ensuring the well-being of choir members.

Keywords: Awareness, Health Risks, Health Action, Microphone, Church Choir Members

INTRODUCTION

Music and singing are vital elements of cultural expression worldwide, providing a platform through which societies communicate their values, beliefs, and emotions. In Christianity, music transcends mere entertainment; it serves as a profound medium for worship, adoration, and the proclamation of the gospel. The historical landscape of African music is rich with traditional instruments such as the talking drum and gongs, which were integral to communal and religious practices long before the introduction of Christianity (Ndolo, 2006). Even today, these instruments persist in use within many orthodox churches and rural communities, coexisting alongside more modern technologies.

The advent of modernity and technological advancement has revolutionised the way music is produced and experienced in contemporary religious settings. Electronic devices such as loudspeakers, keyboards, and mixers have become commonplace, enhancing the quality and reach of musical performances. Among these, the microphone stands out as a particularly significant tool, essential for projecting the voices of singers and speakers to large congregations. Microphones are ubiquitous in modern church services, where they are utilised to ensure that sermons, prayers, and songs are clearly heard by all attendees, regardless of the size of the gathering.

However, the widespread use of microphones, particularly their frequent sharing among multiple users, has raised concerns about potential health risks. Research by Osita, Tochukwu, Onwubiko, Nwankwo, and Adure (2019) underscores the dangers posed by pathogenic bacteria that can thrive on the surface of microphones. These bacteria pose a significant risk, especially to individuals with weakened immune systems. De Buglio (2009) highlights that microphones, when exposed to saliva, sneezes, and other contaminants, can

become breeding grounds for germs and viruses, which may remain infectious for up to 48 hours. This creates a pathway for the transmission of illnesses such as strep throat, tuberculosis, and even more severe conditions like throat cancer. The risk of transmitting COVID-19 through shared microphones has also been documented, with outbreaks linked to choir practices in various locations, including Washington State, Amsterdam, Berlin, and France (Hamner *et al.,* 2020).

These health risks have prompted several governments in developed countries, as well as leaders of church denominations, to establish stringent guidelines regarding the use of musical devices like microphones. Despite these precautions, the sharing of microphones among choir members in many churches, particularly in Nigeria, appears to be a matter of little concern (Zagpish, 2020). While some churches ensure that lead pastors have personal microphones that are not shared, often as a mark of reverence, choir members and other users frequently share microphones across different services, venues, and events without considering the potential health implications.

Why do choristers continue to share microphones despite the known dangers? Is it due to ignorance, cultural practices, or a general lack of concern for health precautions? Although numerous studies have explored the role of music and singing in church worship, the literature is sparse when it comes to examining the awareness and health actions of church choristers regarding the risks associated with sharing microphones. This gap is particularly pronounced in developing countries like Nigeria, where attitudes towards health precautions are often lax, and healthcare facilities are inadequate.

This study seeks to address this gap by investigating the behaviour and awareness of church choir members in Taraba State, Nigeria, concerning the health risks associated with microphone sharing. By focusing on this specific population, the research aims to provide insights into the level of awareness among choristers and the actions they take, if any, to mitigate these risks. This study is not only relevant to public health but also crucial for enhancing the safety and well-being of those who participate in choral activities in churches.

Statement of the Problem

The use of microphones is integral to church choir performances, as these devices amplify voices, ensuring that music reaches the entire congregation. However, in many churches, the number of available microphones often does not match the number of choir members,

leading to the common practice of sharing microphones. This practice is particularly prevalent among backing vocalists and other choir members who frequently use the same microphones during services.

Despite its practicality, sharing microphones poses significant health risks, as it facilitates the transmission of communicable diseases. Microphones can easily become contaminated with germs and viruses when an infected person speaks, sings, or breathes into them. These pathogens can then be transferred to subsequent users, increasing the likelihood of spreading illnesses, some of which may have severe or even fatal consequences.

Given these risks, it is crucial for choir members to understand and adopt hygienic practices when using microphones. However, existing research has not sufficiently addressed whether church choristers are aware of the health risks associated with sharing microphones or what their attitudes towards these risks might be. This gap in knowledge highlights the need for further investigation. Therefore, this study aims to explore the awareness and attitudes of choir members in Taraba State, Nigeria, regarding the health risks of sharing microphones, to inform better practices and safeguard the health of choir members and their communities.

Research Questions

The study seeks to answer the following research questions:

1. What is the level of awareness among Christian church choir members in Taraba State regarding the health risks associated with sharing microphones?
2. What are the perceptions of Christian church choir members in Taraba State towards the health risks of sharing microphones?
3. What preventive actions are taken by Christian church choir members in Taraba State to mitigate health risks associated with sharing microphones?

Literature Review

Concept of Microphone

A microphone is a device that translates sound vibrations in the air into electronic signals. Developed by Emile Berliner in 1877, microphones are used to convert sound waves into electrical signals, which can be processed by computers or amplified through speakers. These devices capture audio by converting sound waves into electrical signals, either digital or analogue, making them indispensable in modern sound systems (Udeozor, 2014).

Microphones come in various forms, connected to sound systems either through wires or wirelessly. Each microphone has unique characteristics, making some better suited for specific uses, such as enhancing the voice of a bass singer or accommodating high-energy performances. There are several types of microphones, each employing different methods to convert sound waves into electrical signals. The most common types include dynamic microphones, which use a coil of wire suspended in a magnetic field; condenser microphones, which use a vibrating diaphragm as a capacitor plate; and contact microphones, which utilise piezoelectric crystals. Before the signal can be recorded or amplified, microphones typically need to be connected to a preamplifier (Owuamalam, 2007).

Microphones are often designed with specific purposes in mind. One key consideration in microphone design is directionality, which determines how well a microphone picks up sound from different directions. Omnidirectional microphones, for instance, capture sound from all directions but are less effective in isolating a single source from background noise. Directional, bidirectional, and shotgun microphones are better suited for interviews and group performances, such as choir singing (Owuamalam, 2007).

Church Choir

The term 'choir' refers to a group of individuals who rehearse and sing together, either in secular or religious contexts. However, it is most commonly associated with church singing groups. In Christian churches, choirs play a crucial role in leading the congregation in praise and worship through song (Udoh, 2019). Historically, church choirs have participated in services, though their roles were initially limited to singing plainsong in unison. Today, Christian church choirs lead the congregation during offerings, thanksgiving, Communion, and other parts of the service.

Choirs practice extensively to sing together harmoniously. According to Babatunde (2016), the primary role of a church choir is to minister through song, preparing the hearts of worshippers for the message delivered by the priest or pastor. Nitz (2016) describes the choir as an extension of the pulpit, as they teach, encourage, and inspire the congregation through their music. While some choir groups perform without instruments, most rely on various devices, including microphones, which have become essential in choir performances. During church services, microphones are either mounted on stands or held by individual singers. Choir members are often grouped by vocal range, with each group

sharing a microphone. This practice, however, raises concerns about the potential health risks, as the act of sharing microphones can facilitate the transmission of bacteria and viruses, especially when users sneeze, cough, or touch the microphone.

Health Risks in Microphone Sharing

Microphones are susceptible to contamination and can pose significant health risks. According to Patel et (2020), microphones can harbour bacteria and viruses, particularly when misty saliva particles from an infected person land on the microphone during use. These particles can spread diseases such as COVID-19 and tuberculosis to subsequent users. Osita et al (2019) similarly highlight that microphones can become contaminated with cold and flu germs in various ways. The close proximity of the microphone to the mouth during use, as well as the handling of handheld microphones, increases the risk of transmitting germs.

Microphones with pop and wind filters are particularly prone to harbouring germs, as they can retain moisture for extended periods, increasing the risk of spreading diseases (Osita et al, 2019). When contaminated microphones are shared, the risk of transmitting illnesses to other users is significantly heightened. Singing, as a vocal activity, presents a unique risk of disease transmission due to the production of respiratory droplets and aerosols. While less forceful than coughing or sneezing, singing can still release particles large enough to carry viruses, which can be inhaled by others or land on shared surfaces, including microphones (Mobley & Bridges, 2015). The act of singing generates respiratory particles from the bronchioles, larynx, and oral cavity, increasing the risk of transmission compared to less intense respiratory activities (Koizumi, Siddique & Andalibi, 2020). Streeck et al. (2020) specifically note that choir practice provides multiple opportunities for droplet transmission due to close contact and the act of singing, which can contribute to the spread of diseases like SARS-CoV-2. Similarly, Asadi et al. (2020) assert that when multiple individuals sing or speak simultaneously, the release of respiratory particles increases, posing significant health risks.

Health Precautionary Actions in Microphone Sharing

Given the limited research on the topic and the lack of understanding regarding aerosol-generating respiratory activities and their role in pathogen transmission, developing evidence-based recommendations for the public remains challenging. However, some literature has attempted to describe health precautions that should be observed when

sharing microphones in group settings, such as church choirs. While these resources are sparse, they provide valuable insights into safe microphone-sharing practices.

Al-Ghamdi et al. (2011) emphasise the importance of proper hand hygiene as a primary measure to prevent infections when sharing microphones. Regular hand washing with soap and water or using an alcohol-based hand sanitiser is crucial for choir members to minimise the risk of disease transmission. Ashgar and El-Said (2012) recommend that choir members maintain a safe distance between the microphone and their mouths to reduce the likelihood of contaminating the device with saliva or respiratory droplets. This precaution helps minimise the spread of disease-causing germs.

Another important health measure is the use of individual microphone cases and the regular cleaning and disinfection of microphone foams. Replacing foams or windscreens at short intervals is also advised (Rusin, Maxwell & Gerba, 2002). However, Opera et al. (2013) point out that many microphones have integrated windscreens that cannot be easily removed or effectively cleaned, making it difficult to eliminate germs and bacteria without damaging the microphone. Despite these challenges, some precautions can still help reduce the risk of spreading illnesses, such as using hand sanitiser, sneezing into the elbow, and keeping shared surfaces like microphone handles clean (Zagpish, 2020).

The use of personal protective equipment (PPE), such as face masks and face shields, has also been advocated by health experts as a necessary precaution against the transmission of diseases during microphone sharing (Matthew et al., 2021). Additionally, Mayo Clinic (2020), as cited in De-Buglio (2019), suggests that the best way to protect oneself from a contaminated microphone is to use a personal microphone. However, this recommendation may not be feasible for many church choirs, where the number of members is often high, and churches may not have the resources to provide individual microphones for each member.

Empirical Review

Several existing studies are related to the current research. For instance, Osita, Tochukwu, Onwubiko, and Adure (2019) investigated the antibiotic patterns of bacteria isolated from microphones used in various churches in Umuahia, Abia State, Nigeria. The study involved the collection of 100 samples from the mouthpieces and handles of microphones across 22 different churches using sterile swab sticks moistened with normal saline. A total of 85 isolates comprising eight genera were characterised from the samples. The findings

demonstrated that microphones could facilitate the spread of pathogenic microorganisms between individuals and groups, potentially leading to disease outbreaks. However, while this study highlights the health risks associated with microphones, it does not address the awareness and attitudes of church choir members towards these risks. In a related study, Briscoe et al. (1985) reported an outbreak of streptococcal throat infections (group A Streptococcus) among students at a boys' school, including some choir members. During three school terms, 38.9% (37/95) of boys, including 46.4% (13/28) of choir members, tested positive. The authors attributed the spread of infection to close contact in classes, dormitories, and the choir, although they found no evidence that choir members were at higher risk of infection than non-choir members.

Historically, Mycobacterium tuberculosis (the causative agent of tuberculosis) was the most commonly reported pathogen transmitted during singing. However, in recent times, the transmission of COVID-19 via singing groups has become a significant concern. Numerous cluster and outbreak investigations have suggested that singing contributed to the spread of COVID-19. In the majority of these studies, transmission likely occurred through respiratory droplets and aerosols during prolonged and unprotected close contact, as well as through fomite transmission via shared surfaces and devices, including microphones. Researchers have documented several outbreaks among church choir members and singing groups in schools. In Singapore, Wei et al. (2020) described seven clusters of COVID-19 cases and suggested that presymptomatic transmission occurred during a singing class in two of these clusters. In South Africa, Jaja, Anyanwu, and Iwu (2020) noted that COVID-19 outbreaks were often associated with funerals and church services where singing took place, and where social distancing guidelines were not routinely followed. The authors remarked that, during church services, congregants sing and worship loudly, sit close to each other, and frequently touch surfaces or fomites, which may be contaminated.

In Japan, Furuse et al. (2020) identified 61 clusters of COVID-19, defined as five or more cases, of which seven (11.5%) were events involving singing and music, such as concerts, choir rehearsals, and karaoke parties. The authors noted that many of these clusters involved heavy breathing and close proximity among individuals. Similarly, Koizumi, Siddique, and Andalibi (2020) reported that, prior to a ban on mass gatherings and the implementation of social distancing rules in Japan, a single infectious concertgoer was responsible for 103 secondary and tertiary cases across eight live concert venues. In Hong

Kong, Cheng et al. (2020) documented 11 clusters involving 113 cases associated with people not wearing masks in various settings, including church choir singing. Additionally, in the US state of Georgia, Pung et al. (2020) reported on a COVID-19 outbreak at a camp where indoor and outdoor cheering and singing were believed to have contributed to transmission.

While there is limited evidence specifically addressing the health risks associated with sharing microphones among choir groups in churches, the existing studies unequivocally reveal that microphones, like any other devices, can become contaminated with viruses, particularly in the current COVID-19 era, and thus contribute to the spread of diseases.

Theoretical Framework

This study is grounded in the Health Belief Model (HBM), which was originally developed in the 1950s by social psychologists Irwin M. Rosenstock, Godfrey M. Hochbaum, S. Stephen Kegeles, and Howard Leventhal at the U.S. Public Health Service (Kim, & Kim, 2020). The HBM is predicated on the notion that an individual's willingness to alter their health behaviours is influenced by their perceptions regarding health. Specifically, the model posits that personal beliefs about health risks and conditions play a crucial role in shaping health-related behaviours (Glanz, Rimer & Viswanath, 2008). The HBM delineates several key factors that impact health behaviours, including perceived susceptibility (the degree to which individuals believe they are at risk of contracting a health condition), perceived severity (the extent to which individuals believe that the health condition would have serious consequences), perceived benefits (the belief in the positive outcomes of adopting health-protective behaviours), perceived barriers (the obstacles or challenges that might impede the adoption of health behaviours), cues to action (the factors or triggers that prompt individuals to take action towards improving their health), and self-efficacy (the confidence in one's ability to successfully perform a health behaviour).

The HBM is a widely employed framework for understanding health behaviours and offers a comprehensive approach to investigating health-related actions. In the context of this study, the model provides valuable insights into the health behaviours of church choir members concerning microphone sharing. Specifically, the model facilitates an examination of how choir members' perceptions of their susceptibility to illness, the severity of potential health risks, and the perceived benefits and barriers associated with preventive measures influence their health behaviours. The study will explore whether choir members perceive

themselves to be at risk of diseases transmitted through shared microphones, whether they consider these risks to be severe, and whether they believe that adopting health precautions—such as using personal microphones or engaging in regular sanitisation—can mitigate these risks. Additionally, the study will assess the perceived barriers to implementing these health precautions and evaluate the cues that may prompt members to adopt preventive measures. Through this application of the HBM, the study aims to elucidate the factors that shape the health behaviours of choir members and inform strategies for enhancing health practices within church choirs.

METHODS

This study employs a descriptive survey design, which is effective for providing a detailed account of current conditions and behaviours. Descriptive research is ideal for reporting and describing phenomena, as it facilitates the collection of data that accurately reflects reality. By using this design, the study can gather standardised information from a specific population to make generalisations about the broader population, while ensuring the minimisation of bias and enhancement of reliability (Mugenda & Mugenda, 2003). The research was conducted in Taraba State, Nigeria, a region characterised by diverse demographic and geographical features. The study focuses on Christian church choir members from ten selected churches, with a total population of 525 choir members. To determine the sample size, the study employed the Taro Yamane formula, resulting in an approximate sample size of 227 members. This sample was allocated proportionally among the ten selected choirs. The sampling technique involved cluster random sampling, with respondents chosen from each choir group using systematic random sampling. Data was collected through a self-administered online questionnaire distributed via WhatsApp. The questionnaire, which comprised closed-ended questions, was validated through literature review and expert review to ensure accuracy and relevance. Data analysis utilised descriptive statistical tools, with SPSS Version 13 employed to generate frequency counts and percentages for data presentation.

RESULTS

A total of 227 respondents were initially targeted for this study; however, only 225 provided valid responses that were used in the analysis.

Data Presentation:

Gender Distribution of Respondents

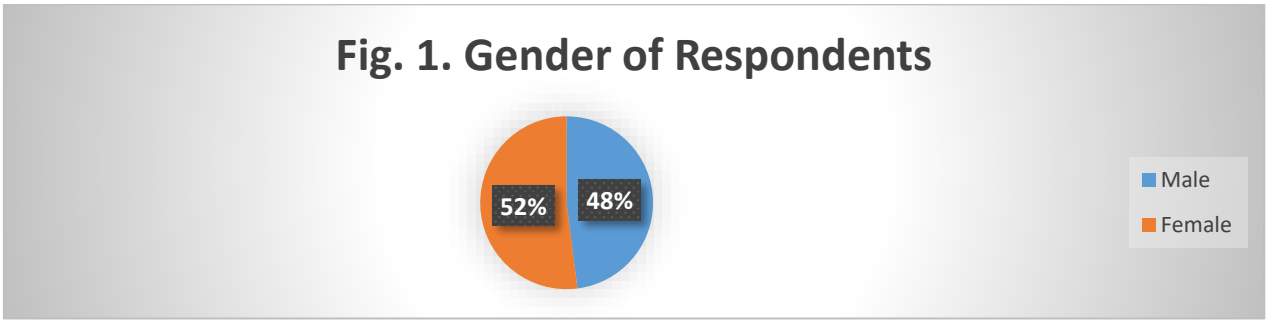

Figure 1 illustrates that within the Christian church choir groups in Taraba State, the membership comprises a slightly higher proportion of females (52%) compared to males (48%). This gender distribution may influence the dynamics of health risk perceptions and preventive behaviours within the choir groups. Understanding this balance is important for tailoring health promotion and risk communication strategies effectively.

Fig. 2. Distribution of Respondents by Age Bracket

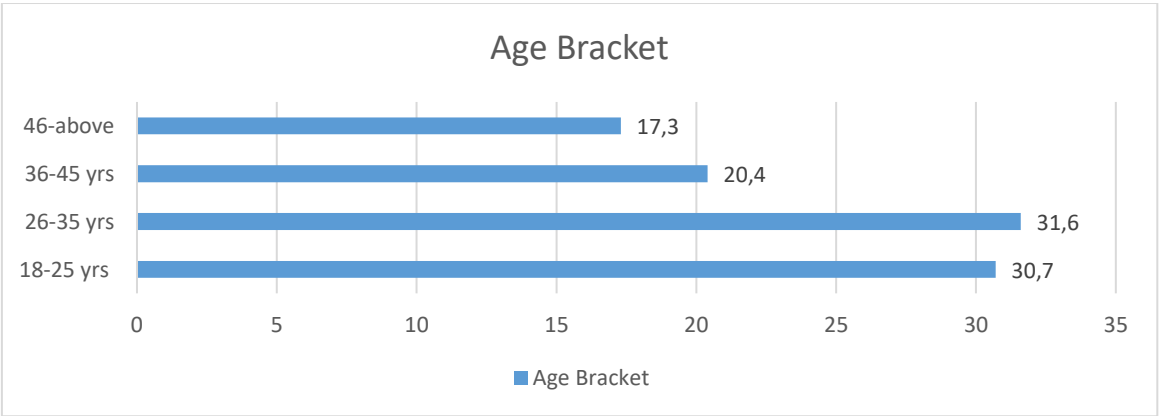

Figure 2 presents the age distribution of respondents, which helps to identify the predominant age groups among Christian church choir members in Taraba State. The majority of respondents are aged between 26 and 35 years (31.6%), followed by those aged 18 to 25 years (30.6%). A smaller proportion is in the 36 to 45-year range (20.4%), with 17.3% being over 56 years. This age distribution suggests that a significant portion of the

choir members are young adults, a demographic that may have specific health risk perceptions and behavioural patterns. The findings are crucial for understanding how age-related factors might affect the choir members' awareness of and response to health risks associated with sharing microphones, informing targeted health interventions and educational programmes.

Fig. 3 Distribution of Respondents by Education Qualification

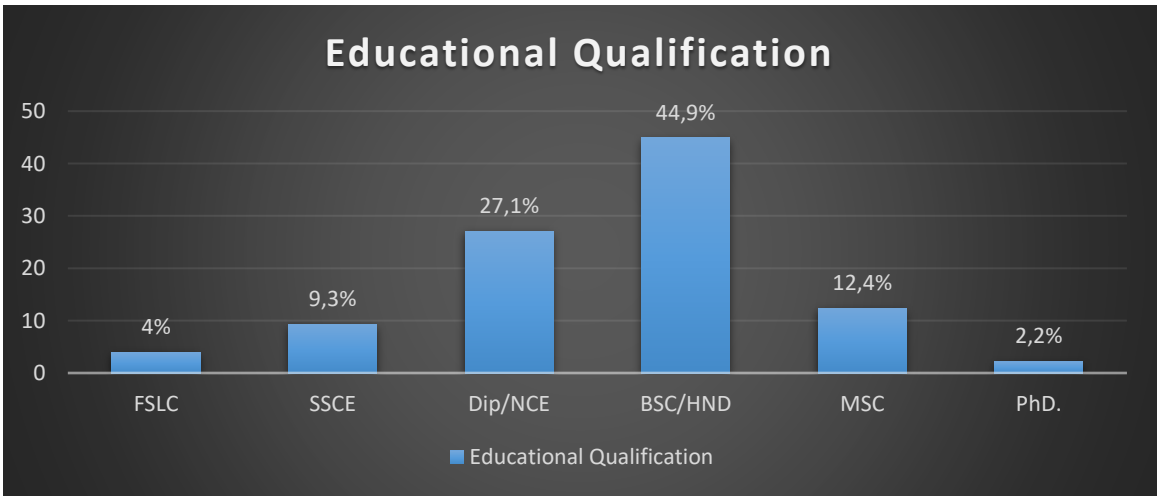

Figure 3 depicts the educational qualifications of the respondents, highlighting that educational background can influence awareness of health risks. The survey revealed that 4% of respondents held a First School Leaving Certificate (FSLC), 9.3% had a Senior School Certificate, and 27.1% possessed a Diploma or National Certificate in Education (NCE). A substantial 44.9% of respondents held a Bachelor's degree or Higher National Diploma (HND), 12.4% had a Master's degree, and a small proportion held a PhD. The findings indicate that the majority of respondents have attained significant educational qualifications. This higher level of education may correlate with greater awareness of health risks and preventive measures, suggesting that educational status could impact how choir members understand and address health risks associated with microphone sharing.

Fig. 4 Distribution of Respondents by Duration in Choir Group

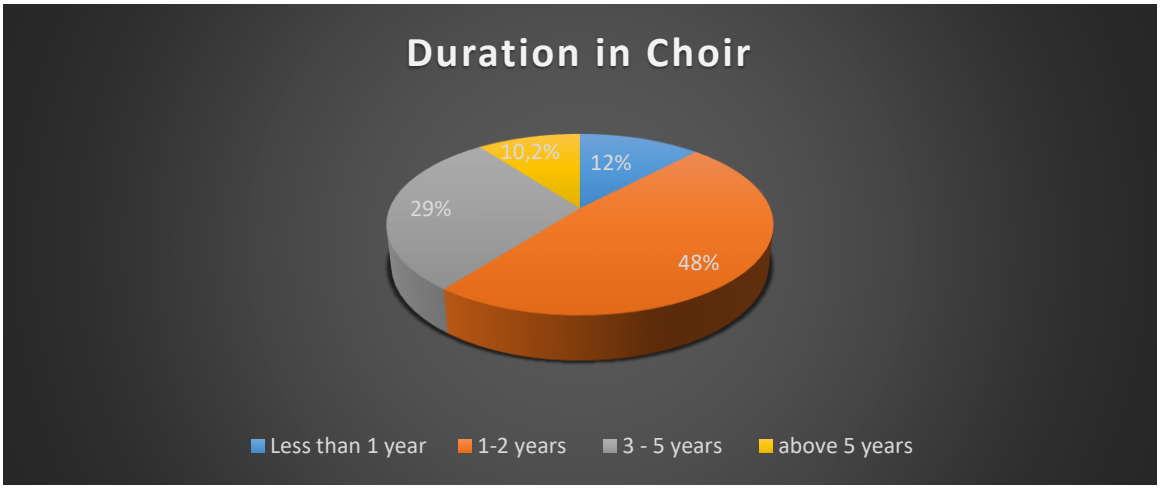

Figure 4 illustrates the tenure of respondents within their church choirs. The majority, 48%, have been choir members for 1-2 years, followed by 29% who have been involved for 3-5 years. Additionally, 12% have been members for less than one year, and 10.2% have been members for over five years. This distribution indicates that most respondents have a considerable period of experience in their church choirs. Such long-term involvement may provide them with valuable insights into practices like microphone sharing and the associated health attitudes. Understanding the duration of membership is important for assessing how experience within the choir might influence perceptions and behaviours related to health risks.

Table 1: Respondents' Awareness of Health Risks in sharing Microphone

Health Risks	Very much aware	Averagely aware	Lowly aware	Not Aware
Droplets of illness causing viruses, germs and bacteria can be contacted by sharing microphone.	21 (9.3%)	32 (14.2%)	101 (44.9%)	72 (32%)
Germs and viruses left on a microphone can remain infectious for as long as 48 hours	4 (1.8%)	11 (4.9%)	19 (8.4%)	191 (84.9%)
One can contact disease like tuberculosis in sharing microphone.	56 (24.9%)	98 (43.6%)	39 (17.3%)	32 (14.2%)
Covid 19 can easily be contacted through sharing microphone.	29 (12.9%)	102 (45.3%)	87 (38.7%)	7 (3.2%)
Cold or throat problem can be caused by sharing microphone.	13 (5.7%)	17 (7.6%)	24 (10.7%)	171 (76%)

Table 1 illustrates the respondents' awareness of health risks associated with sharing microphones. Only 9.3% of respondents are very aware that sharing microphones can transmit illness-causing viruses, with the majority (84.9%) being unaware of this risk. Awareness that germs and viruses can remain infectious for up to 48 hours is similarly low, with 84.9% of respondents not recognising this risk. When considering the potential transmission of diseases like tuberculosis, 24.9% of respondents are very aware, but 43.6% still lack awareness of this risk. Awareness of COVID-19 transmission through microphone sharing shows a mixed response: 12.9% are very aware, 45.3% have average awareness, and 38.7% have low awareness. Regarding the risk of developing cold or throat problems, only 5.7% of respondents are very aware, while 76% are not aware of this risk at all. Overall, the findings indicate a general lack of awareness among choir members about various health risks associated with microphone sharing.

Table 2: Respondents' perception of health risks in sharing microphones

Items	Yes	No	Can't say
I believe it is possible to contract transmissible diseases from sharing microphones in a church choir.	42 (16.5%)	130 (57.8%)	53 (23.6%)
I believe I can transmit diseases to others through sharing microphones in a church choir.	32(14.2%	107 (47.6%)	86 (33.7%)
I believe throat problems among choir members in church can be linked to sharing microphones.	11 (4.9%)	128 (56.9%)	97 (43.1%)
I believe that there is no any health risk with sharing one microphone among choir members.	168 (75.1%)	8 (3.6%)	48 (21.3%)
I believe God will not allow us to contract diseases while sharing microphones in a church choir.	200 (78.4%)	0 (0%)	55 (21.6%)

The respondents primarily exhibited negative perceptions regarding the health risks of sharing microphones in a church choir. Only a small proportion (16.5%) believe it is possible to contract transmissible diseases from sharing microphones, while a majority (57.8%) do not view it as a risk, and 23.6% remain uncertain. Similarly, 14.2% think they could transmit diseases to others through microphone sharing, but 47.6% disagree, and 33.7% are unsure. There is also scepticism about the connection between throat problems and microphone sharing, with only 4.9% believing in a link, 56.9% disagreeing, and 43.1% undecided. Additionally, a significant majority (75.1%) believe there are no health risks associated with sharing microphones, although 3.6% think otherwise and 21.3% are unsure. Notably, a substantial 78.4% of respondents believe that God will prevent them from

contracting diseases while sharing microphones, with no respondents disagreeing and 21.6% uncertain. This strong sense of divine protection seems to overshadow practical health concerns and further highlights the overall negative perception of the health risks associated with sharing microphones.

Respondents' Preventive actions against health risks associated with sharing microphones

Items	Always	Occasionally	Rarely	Never
Frequency of Microphone Cleaning	11 (4.3%)	192 (75.3%	22 (8.6%)	0 (0%)
Changing Microphone Foams	23 (9.0%)	134 (52.5%)	60 (23.5%)	3 (1.5%)
Disinfection of Microphone Handles and Cables:	5 (2.0%)	25 (9.8%)	96 (37.6%)	99 (38.8%)
Hand Sanitisation	12 (4.7%)	27 (10.6%)	89 (34.9%)	99 (38.8%)
Use of Protective Gear e.g face masks and face shields	6 (2.4%)	23 (9.0%)	56 (22.0%)	160 (62.7%)

The data on respondents' action against health risks associated with sharing microphones. A predominant majority of respondents (75.3%) clean microphones occasionally, with only a small fraction (4.3%) doing so always, and none reporting never cleaning them. This indicates that while regular cleaning is common, consistent and frequent cleaning is rare. When it comes to changing microphone foams, 52.5% do so occasionally, and 9.0% always change them, suggesting that foam replacement is somewhat common but not universally practised. A small proportion (1.5%) never changes foams, indicating some neglect in this area. In terms of disinfection of microphone handles and cables, the behaviour is notably inconsistent. Only 2.0% of respondents always disinfect, while 9.8% do so occasionally, and a significant 38.8% never engage in this practice. This highlights a major gap in the adoption of disinfection procedures. Hand sanitisation shows a similar trend, with 4.7% always sanitising, 10.6% occasionally, and 38.8% never sanitising their hands before using microphones. Finally, the use of protective gear such as face masks and face shields is notably infrequent, with 62.7% never using such gear. The overall result suggests a lack of positive behaviour towards the adoption of preventive measures against potential health risks associated with sharing microphones among the respondents.

DISCUSSION

This study surveyed the awareness and health actions regarding health risks among Christian church choir members in Taraba State, Nigeria, guided by three research questions. The first question aimed to assess the choir members' awareness of health risks associated with sharing microphones. Data analysis indicated that the majority of choir members demonstrated limited awareness of the potential health risks associated with microphone sharing. Specifically, most members were unaware that microphones can harbour illness-causing viruses, germs, and bacteria, or that these pathogens can remain infectious on a microphone for up to 48 hours. Additionally, many did not recognise that sharing microphones could be linked to cold or throat problems. However, a smaller proportion of members were aware of the potential for diseases like tuberculosis and COVID-19 to spread through shared microphones. This aligns with previous observations by Wei et al. (2020), who noted that musical objects, including microphones, can be sources of disease transmission due to insufficient awareness among users, such as church choir members.

The second research question explored the choir members' perceptions of the health risks associated with microphone sharing. The findings revealed a predominantly negative perception of these risks. A significant number of respondents did not believe that sharing microphones posed a risk of transmitting or contracting diseases. Moreover, many did not associate cold or throat problems with microphone use, and a large portion did not perceive any inherent health risks in sharing microphones. This reflects a broader trend observed by Shadrach (2019), who found that erroneous beliefs and high levels of religiosity can contribute to a lack of concern about health risks among some Nigerian populations.

The third research question examined the actions of choir members towards protective measures against health risks. The data indicated that respondents generally displayed a poor action towards health precautions. Most members engaged in microphone cleaning only occasionally and rarely changed microphone foams. Disinfection of microphone handles and cables was similarly infrequent, and the use of hand sanitisers and protective gear like face masks was not widespread. These findings reflect a broader issue identified in previous research by Mayo Clinic (2020), which highlights a general neglect of health measures related to surface contamination and the sharing of musical equipment.

Additionally, Zagpish (2020) noted that many singers and performance groups, including choirs, often lack branded microphones and do not take proactive measures to protect themselves from risks associated with sharing equipment.

CONCLUSION

This study has demonstrated that microphone sharing among church choir members in Taraba State is prevalent, which poses significant health risks, including the potential transmission of diseases such as tuberculosis and COVID-19. While the study does not specifically detail the health implications experienced by members of the selected church choir groups, it reveals a general lack of awareness and concern about these risks. Choir members generally do not perceive microphone sharing as a potential health hazard and consequently exhibit a poor attitude towards adopting necessary safety precautions.

The findings indicate that choir meetings, rehearsals, and ministrations are potentially high-risk environments for disease transmission due to shared microphones. This suggests that without appropriate preventive measures, choir members are at risk of contracting and spreading illness-causing germs. To mitigate these risks, it is crucial for church choirs and their respective congregations to implement and enforce effective hygiene and safety protocols.

Recommendations

Based on the study's findings and conclusions, the following recommendations are proposed to mitigate health risks:

1. There is a need to raise awareness among church groups, particularly choir members and leaders, about the potential health risks associated with sharing microphones.
2. Choir members should be encouraged to adopt basic hygiene practices, including regular hand washing and the use of hand sanitiser before and after sharing microphones. This individual responsibility is crucial for reducing health risks.
3. Choir leadership, in collaboration with the local church council, should implement and enforce a routine for the general cleaning and disinfection of microphones on a weekly basis.

4. Church leadership should ensure that microphones are equipped with adequate foam covers, which should be replaced after each presentation to maintain cleanliness.
5. The use of personal protective equipment, such as face shields, should be encouraged among choir members to provide an additional layer of protection.

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