**HEAVY SOUND IN SOCIAL GATHERING AND THEIR IMPLICATIONS ON HUMAN EAR DRUM ANATOMY**

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**Abstract**

The Yoruba people of western Nigeria are known for organising loud musical parties which includes eating, drinking, and loud music generally known as “O *wa* *mbe*”. The Yoruba people are found in the western part of Nigeria in such places like Ogun, Oyo, Ondo, Lagos, Kwara, Osun, Ekiti and in south-eastern part of the Republic of Benin. The social gatherings that posted heavy sounds includes; weekend parties, church services, market noises, street adverts, political campaigns and even sounds of generating sets. Therefore, this paper considers those conditions of heavy sounds that affect human health, so that we may learn how to control these conditions and prevent ill-health and the unhappiness which they cause. The paper focused on the analysis of harmful effects of loud sounds on the eardrum of human beings and the general environmental hazard of loud and uncontrolled sound in the society. The paper also suggests various ways in which human beings can do away with heavy sounds in their gatherings.

Keyword: Heavy sound, noise, O wan be, Human health, ill-health, eardrum

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Introduction

 The study of the scientific nature of sound in social gathering and their implication is meant to enhance good health of sound-practitioners. Sound is at the centre of all human activity and music which is the craftsmanship of expressive thoughts in sound, constitutes an aspect of it study. Music is simply an exercise of combining sounds in a manner that appeals to the sensibility of the listener. Our reactions and preferences for music vary from person to person. An individual may love heavy metal, loud pop, while another is happiest listening to classical or cool traditional music. The bottom line is that your music must make you feel good about yourself. Therefore, musical sound and the human eardrum that receives and transmits sounds to the brain constitute a very important aspect of musicological discussion and analysis.

 Sounds are of two types: pleasant sound and noisy sound; however, too much of loudness of musical sound naturally metamorphosed to noise which is dangerous to human health. Noise is any unwanted or disagreeable sound and is often dismissed simply as “a nuisance”. Sound becomes harmful when it diminishes human health or quality of life and poses a serious threat to physical and psychological health, including learning and behaviour. Therefore this paper explores the implications of heavy or too much sound on human eardrum anatomy and to suggest an improvement to the quality of life of musicians. Without full health, neither work nor play nor music can be fully enjoyed.

 The paper focused on the analysis of harmful effects of loud sounds on the eardrum of human beings. For example, the Yoruba people of western Nigeria are known for organising loud musical parties which includes eating, drinking, and loud music generally known as “O *wa* *mbe*”. The Yoruba people are found in the western part of Nigeria in such places like Ogun, Oyo, Ondo, Lagos, Kwara, Osun, Ekiti and in south-eastern part of the Republic of Benin. The social gatherings that posted heavy sounds includes; weekend parties, church services, market noises, street adverts, political campaigns and even sounds of generating sets. Therefore, this paper considers those conditions of heavy sounds that affect our health, so that we may learn how to control these conditions and prevent ill-health and the unhappiness which they cause.

 It seems possible to distinguish between three kinds of noise: acoustical noise, cultural noise and environmental noise. Acoustical noise results from poor building acoustic and poor transmission system. Cultural noise is the disparities which may exist between the habit responses required by the musical style and those which a given individual actually possesses. Thus, environmental noise, which is the most dangerous and uncontrollable, constitutes extra-tonal sound above the music. There appears to be positive correlation between acoustical noise and cultural or inherent noise, both are musically controllable and manageable. However, environmental noise, which is the focus of this paper is very dangerous and lack control.

 Music is important, but if played too loud, it causes permanent and irreversible damage to our hearing. Noise is not just annoying; it is potentially dangerous, both physically and mentally. It has been described as “a slow agent of death”. A form of energy, sound or noise is caused by anything that vibrates, that moves back and forth. Our ears receive the effects of this vibrating motion from a distance, great or small, via sound waves. We hear sound because our eardrums are moved back and forth by the changes in air pressure. If people who are only three feet away have to shout to be heard while you are listening to music, then it is too loud. Music-induced hearing loss and affect the enjoyment of music, difficulty in pitch perception, may also threaten a musician’s career. The concept of a global village pronounced by the information and communication technology equipments has impacted on the traditional musical sounds and their practitioners. This paper, therefore, focuses on the preventive measures of our eardrum from heavy damaging noise sound.

**Theoretical Framework**

 This study is found within the theoretical framework of Mereni’s (2012) ‘nocturnal quiet theory’ of the African elders for a very important tete-a-tete. According to the theory, silence has an important place in traditional life of Africans. Mereni postulates that Africans recognises the importance of quiet environment especially during an important elders meeting and discussion on issues like sudden death in the society, famine, pestilence, leprosy outbreak, lack of rain and mass death among the children. It is common that such an important meeting among the African elders fix around 1am to 3am. Besides, the elders believed that such an angelic period would enhance a peaceful deliberation that is devoid of women and children’s disturbances and also for proper and appropriate decisions to be taken. This practice also extends to the maintenance of quiet attitude in specific periods; such as early morning and high-afternoon periods, between 1pm and 3pm. It is the belief of the Africans that spirits often move around during this period, Omibiyi (1987) submitted that “when a Yoruba throw water outside in the afternoon, it is always accompanied with the phrase ‘*agoo* *olode’* (owner of the earth please beware)”.

 Therefore, this paper hinges on the nocturnal quiet theory of the African elders, postulated by Mereni. Generally, heavy sound-making is un-traditional Africans except in a war situation or very special occasions. The current heavy sound among the African populace is as a result of the advent of electronic equipment and acculturation of western lifestyle. Specifically, Africans control sounds through the propagation and enforcement of taboo. For example, the Yoruba of western Nigeria have several taboos known as “*eewo*” (forbidden). One of such is not to shout indiscriminately in the afternoon. Therefore, this paper naturally allies with sound control mechanism of African elders theory propounded Mereni.

**The Human Ear**

 Man is a mammal of a special kind. Man can control his environment and infectious diseases that seriously threaten his life. In man, as in most other mammals, the visible external ear is gristly structure that serves to collect sound waves and direct them down a tube on to the eardrum. The eardrum consists of a very thin membrane stretched across the inner end of the tube leading from the external ear. Its function is to transmit sound from the air to the ‘ossicles’ inside the middle ear, and then to the oval window in the fluid-filled cochlea. Hence, it ultimately converts and amplifies vibration in air to vibration in fluid (Wikipedia).

 The interconnection between musical sound and eardrum anatomy is the foundation to all musical presentations and studies. The pleasantness of sound arrangement or otherwise is judged through the ear. According to Wikipedia, sound passes through external ear that collects sound waves and directs them down a tube on to the eardrum. The internal ear is divided into two parts: the middle ear and the inner ear. The actual organ of hearing consists of a spirally-coiled passage shaped like a tiny snail-shell and filled with a liquid; it is called the cochlea. The vibrations of the eardrum are passed on and magnified by the chain of bones across the middle ear to the membrane of the oval window and similar vibrations are set up in the liquid filling the cochlea **(Wikipedia.org/wiki/Eardrum, 2013)**.

**Social Recreational Engagements and Noisy Sounds**

 Several social and recreational engagements pose a great danger to human health in the area of sound noise production. Noise can pose a serious threat to human physical and psychological health, for example, noise can interfere with speech and language, impair learning and hearing impairment. Noise, like all sounds, is measured by the intensity and frequency of the sound waves that hit the ear. The unit used to measure the volume of sound is the decibel (dB). The greater the number of decibels, the louder the noise and the more harmful it is to the ears.

 The Yoruba people are known for several parties ranging from birthday, house warming, chieftaincy title taking and the high frequency is weekend’s burial ceremony parties. A newcomer to a Yoruba burial party cannot but be irritated with the high noisy-sound level of the so-called music. The excessive heavy noise is so great that most people only use their hands as sign language in greetings. Burial parties present special problems to the party goers who are forced to speak at the highest voice-level to be heard by even the closest person to them. Most of the party attendees are overexposed to heavy sound by the illiterate popular musicians (*gbogbo* *elere*)

 Another current social gathering that overexposed a large number of people to heavy sound or noise is the church services and spiritual gatherings. Most pastors hinge their noise-making in their services to the bible passages that enjoin them to “praise God upon the loud cymbals: praise Him upon the high sounding cymbals” (Psalm 150:5). However, it should be noted that the passage only describes the musical instrument as ‘loud’, and not to overuse the loud cymbals to the detriment of their eardrum as being practised in Nigerian churches. Most church goers believe that heavy singing accompanied with heavy musical instrument is revival, whereas holiness is revival, not how loud the music is. Sound and environmental pollution emanate from such programmes like deliverance services, choruses and praise services.

 Furthermore, the location of the various markets within the residential quarters also exposes people to loud noise. The chaotic town planning and disorganized building arrangement in which local market is found within the residential quarters also pose danger of noise. The common open market and display of goods and services besides the road and the practice of shouting and running after potential buyers is another nuisance of noise making. Most local herb sellers usually accompany their adverts with loud music. Apart from the loud speaker to advertise their products, their heavy so-called background music poses danger to human eardrum. Therefore, market arrangement, running after buyers, unnecessary shouting of advert products, all amounts to hearing loss.

 The current power problem in Nigeria which enables every citizen to own generating set poses special problems. Almost every citizen, both the old and the young including little children, is universally exposed to loud noises of generating set. The operation of big generators around motels and hotels between eight to ten hours every day overexposes the household and the neighbourhood to loud noise. Sleep disturbances due to exposure to high decibel noise can deter the overall well-being. It is a known fact that noise, especially in the night can interrupt a good night’s sleep.

 The impact of noise on the surrounding environment is often more difficult to recognise, however, the effects of noise on human health are very real. It is a misconception that people can adjust to noise by ignoring it or getting used to it. The ear never closes and even responds to sound during sleep. Sound becomes unwanted when it either interferes with normal activities such as conversation and sleeping, or when it disrupts or diminishes the qualities of human live. Therefore, generating set and other noise-making marching must be considered a hazard to the health of people and must be avoided as much as possible.

**Danger of Heavy Musical Sound and Noise**

According to scientific study by Daniel (1966), very loud noise can damage the eardrum. In the New International Standard Medical and Health Encyclopaedia **(Source:http:en.Encyclopedia.org/med)**,

Most physiological damage from noise occurs in the snail-shaped, liquid-filled cochlea, or inner ear. Sound transmitted to the cochlea produces wavers in the liquid, which in turn move delicate and minute structures called hair cells or cilia in that part of the cochlea known as the organ of corti. The motion of the cilia is transformed into electrical impulses that conduct the sensation of sound to the brain. The cilia can easily be fatigued by noise, causing a temporary loss of hearing, or a shift in the threshold of hearing. If they are not given a chance to recuperate, they will be permanently damaged and irreversible hearing loss will result.

 The above is as a result of a well-researched effect of noise on the eardrum of human anatomy. The damage, according to the study, may also result to more and widespread damages in human system such as:

* Migraine headaches
* Stress, which has been found to cause high blood pressure, insomnia, ulcers, digestive disorders, anxiety and elevated heart rates
* Noise can also affect children in special ways: retard language development and impair reading ability.
* Pregnant women exposed to excessive noise may show symptoms of stress and may pass on the harmful effects to their unborn babies.
* Noise-related stress has a definite effect on mental wellbeing and nervous strain.
* More seriously, British medical authorities have reported a significantly higher incidence on mental illness among people exposed constantly to aircraft noise.

([http://www.fags.org/health-encyc/The-Environment-and-Health retrieved on 9-3-14](http://www.fags.org/health-encyc/The-Environment-and-Health%20retrieved%20on%209-3-14), 08:40)

It is unfortunate that some professional musicians find it difficult to avoid excessive noise on the job. Rock and Pop music artists, for example, spend hours at a stretch in enclosed places and sound studio that magnify sound that is already greatly amplified. In fact, the most dangerous are the popular sound musicians known as “*gbogbo* *elere*” in Yoruba palace, they are not only expose themselves but also the public. Such persons may be at serious risk of incurring hearing losses. Hearing impairment due to noise pollution can either be temporary or permanent. When the sound level crosses the 70 decibel mark, it becomes noise for the ear and this can cause irreparable damage and lead to permanent hearing loss. A noisy environment can be a source of heart related problem. Studies have shown that high intensity sound causes a dramatic rise in the blood pressure as noise levels constrict the arteries, disrupting the blood flow. The heart beats rate also increases.

Besides, difficulty arises in sleep due to exposure to high decibel noise which can deter overall well-being. It is a known fact that noise, especially from neighbour’s generator, can interrupt a good night’s sleep. People deprived of uninterrupted sleep show a sharp dip in their energy levels, which often results in extreme fatigue. This can considerable decrease a person’s ability to work efficiently. Noise, like all sounds, is measured by the intensity and frequency of the sound waves that hit the ear. The unit used to measure the volume of sound is the decibel (dB). The greater the number of decibels, the louder the noise and the more harmful it is to the ears ([www.epa.gov/air/noise.htm](http://www.epa.gov/air/noise.htm), Nov., 2009). The intensity of sounds is often measured in units called decibels or dB. These units are logarithmic, that is, 10dB is ten times as powerful as 1dB, 20dB is 100 times as powerful, 30dB is 1,000 times as powerful and so on. On this scale, 0dB is at the threshold of hearing: rushing leaves, 20dB; a quiet office, about 50dB, conversation, 60dB, heavy traffic, 90dB; a pneumatic jackhammer six feet away, 100dB.

 According to the United States Environments Protection Agency in [www.epa.gov/air/noise.htm](http://www.epa.gov/air/noise.htm), November, 2009, Courtesy of Dangerous Decibel): the noise levels in decibels on thermometer are approximate as measure a typical listener’s distance and that noise levels at 85dB or above can be harmful to one’s hearing and requires protection. Help is needed if an individual experiences any of the following symptoms:

* Asks people to repeat themselves.
* Regularly hears ringing, roaring or hissing sounds.
* Speaks loudly or raises voice to be understood by someone standing nearby.
* Does not react to unexpected loud noises.

For most people, temporary hearing impairment can result from sounds over the 85dB now found in market traffic and herbs sellers heavy sounds. The pain threshold is about 120dB; and complete deafening ear damage can result at 150dB, the level at which various Yoruba “O *wa* *mbe*” parties sounds exposures. If the ears do not get a chance to recover, the impairment will become permanent. These environmental hazards, according to [www.epa.gov/children](http://www.epa.gov/children), elevated blood pressure and other cardiovascular ailments can be found in children who are chronically exposed to loud noise.

 The idea that health is wealth has both personal and national dimensions. Good health is a pre-condition for both personal productivity and national development. Nations invest in health care in order to breed a healthy citizenry. According to the World Health Organisation (WHO), Nigeria currently has an average of four practising physicians for every 10,000 individuals resident in the country. A Lancet editorial (2011) draws attention to the fact that there are currently as many Nigerian doctors practising in the United States of America, as there are within the public healthcare delivery sector in Nigeria ([www.beyhealth.com](http://www.beyhealth.com)).

Recommendations and Conclusion

 There is a wide gap between music and noise. Music is enjoyable and very pleasant, it helps to fully relax the person; but noise is disturbing and can actually make people very nervous. Music is capable of affecting a person’s thoughts positively, feelings and behaviour and has been shown to assist with managing stress, expressing emotion and improving communication. There is no doubt that listening to your favourite’s music can instantly put a person in good mood. In the word of Adeoye, O (2014)

Music works on the autonomic nervous system, which is the part of the nervous system responsible for controlling blood pressure, heartbeat and brain function and also the limbic system-the part of the brain that controls feelings and emotions. When slow rhythms are played, our heartbeat slow down, this helps us to breathe more slowly, thus reducing muscle and psychological tension...music releases endorphins which are ‘feel good’ hormones that give motivation to carry on with life...help link with history since the part of the brain which processes music is located next to memory.

 The importance of music cannot be overemphasized because it helps the brain cortex to generate specific brain waves that can include different states of alertness. Such alertness may include; cognitive, functioning motor skill, emotional development, social skills, and quality of life through the responses to music to achieve what we aim to achieve. The appropriate uses of sound generation known as music provides adolescents with a safe place to express themselves and learn life skills such as self discipline, diligence and patience,

 On the basis of the evidence reviewed, the following conclusions regarding the negative effects of very loud sound seem justified. To minimise the risks inherent in loud noise, individual needs to protect himself from the physical and psychological trauma of noise through the following means:

* A walk away from sources of loud noises is inevitable.
* Limit the amount of time spent on noisy activities.
* A periodic medical check-up of persons routinely participating in noisy activities such as weekend parties, playing brass instruments, attending lousy musical concerts or sporting events.
* Create a quite learning and sleeping environment.
* Consult an audiologist (a person who tests and measures hearing) or an otolaryngologist (a doctor who treats diseases and problems of the ear, nose and throat) if one experiences any of the eardrum symptoms.
* We need to learn how to use music intelligently to enhance physical and psychological health, rather than make it an agent that endangers our personal and collective health.
* Do away with a very loud pop music with provoke tendencies to intoxicate, to be wild and un-tame or to come naked on stage.
* Therefore, good music’s; traditional, classical, moderate pop, instrumentals that provoke such feelings and sense of well-being to be happy and gentle should be encouraged.

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