HOARSENESS: CAUSES AND CONTROL IN NIGERIAN ENVIRONMENT

By

OWOJAIYE SUNDAY ONI, Ph.D
Kogi State College of Education (Technical), Kabba

And

OBAJEMU GILBERT OLATUNJI, Ph.D
Kogi State College of Education (Technical), Kabba

Abstract
In this paper "Hoarseness: causes and control in Nigeria environment" is studied. The descriptive survey research method was used. Two Hundred (200) choristers were purposely selected from Yagba-East and Yagba-East, Kogi state, formed the population for the study. The instrument used for data collection was a researcher's structured, validated and reliable, 0.89 "Hoarseness Inventory". Information gathered for the study was by the Researcher and 10 choirmasters as Research Assistants. Data gathered was analyzed using Spearman Ranking Order at alpha 0.05 level of significance and 199 (P–1) degree of freedom. Based on the results of data analysis and the discussions; it could be concluded that: 75% (75) female choristers are aware that adequate protein foods enhance good music making. Based on the conclusions, it could be recommended that choristers should be placed on compulsory protein consumption and made to stay away from cold drinks and excessive exposure to cold weather.

Improper use of voice (hoarseness) could constitute an impediment to production of good and melodious music. And the grand place of music in Nigeria stands at a vantage position. Music had solved the problems of unemployment and had made some youths self-employed. Music propagates good moral standard, youth growth and socio-economic-development of the nation. Recently, there is a sprout of boys and girls in the music trade, following the tremendous achievements of musicians, like Michael Jackson, Talaso Messiah, Ayinde Barrister, Lagbaja and Celine Dionne of America. These music makers have become worthy examples of progressive youths. Through musical (lyrics and sound) production, mixers of lyrics and sound working through sleepless nights have become millionaires. The great enthusiasm exhibited by the craze for dancing and music listening capacity of the youths could therefore be

arrested and utilized to involve them in making music to arrest anti-social behaviours like armed robbery rape, prostitution, gangsterism and thuggery that plague the peaceful co-existence of Nigeria. Could there be a call for philanthropists, wealthy men and women and highly proficient and wealth musicians for assistance for the youths who desire to go into music making in Nigeria?

Several problems emanated for the young music makers however, due to their ignorance at indulging in unnecessary sound emission that has devastating effect on their hearing efficiency (Idowu, 2001 and Lapage & Murray 1998). In Nigeria, some youths are exposed to generators and grinding machines that emit noise > 85dBA to otoacoustic level. Such noise emitted therefore has the deafening power and therefore interfere with phonation and articulation of the music makers. Again, some music makers indulged in drug use and abuse. The constant usages of drugs disturb the mental and social health of these youths (Udoh and Ajala 1991). Drug use and abuse could damage the ear drum, incus, anvil and stapes and even the cochlea which in turn affect the vocal cord.

Pathogenesis of Hoarseness

According to Pracy, Siegler and Stella (2009), the pathogenesis of hoarseness refers to the physiological studies of sound to produce music in relationship to the voice organs. The physiological make of speech therefore shows that sound is produced by the larynx; which is then modified by the lips, teeth, tongue and palate. The first process is being called phonation, and the second process is called articulation. These two phases (phonation and articulation) of speech further specified as: Phase 1: phonation vocal cord mechanism and Phase 2: Articulation of voice production. Further more, Pracy, Siegler and Stella posited that during phonation, the vocal cord must be able to meet along their entire length. If these vocal cords do not meet, hoarseness (a roughness of the voice) is caused. This can be referred to as cracking voice, as the layman perceive it. However, it is not complete loss of the voice (otherwise called aphonic) or disorder of articulation. This phase 1 hoarseness is predicament by laryngeal diseases (Reynolds, Roster and Pearson 1990). These laryngeal diseases symptoms and type must be determined by a laryngologist. It becomes imperative therefore that music students with hoarse voice has something wrong with their larynx; and therefore, they require a laryngologist's medical attention.

The normal vocal cords stand at almost 35^{o} apart, compact and spotless during respiration like one simply gazing at a spot and taking in oxygen in an undisturbed, less agitated atmosphere. The status of the vocal cords lies in pre-phonation level. The Amolds cartilage thinned and not ballooned; in a deep inspiration (taking in oxygen deliberately with effort) the vocal cords assume astride position of about 60^{o} in which each stride of the vocal cord ripping itself apart from its twin vocal cord. The arytenoids cartilage becomes compressed and ballooned: which hinders production of any minute vocalization even including humming. Also, according to Pracy, Ziegler and Stella (2009), the close up at attention position of the vocal cord signifies the

phonation (production of sound, speech and humming) level thereby giving a lengthier priform fossil and aryl-epiloglottis fold. During speech the cord is parallel to each other. The shorter the cords the rapid are their vibration as air passes through the glottis and the higher is the pitch. In producing a "falsetto" voice cords of males are longer and the larynxes are larger than those of the females. This is the affirmation of deeper voice in male. The boys, voice broke at puberty.

Causes of Hoarseness

As mentioned earlier, causes of hoarseness according to Pracy, Ziegler and Stella (2009) include: (1)Roughness of voice (2)improper use of voice (3)inflammation of the vocal cords (4) Tumor of the vocal cords (5) paralysis of the vocal cords (6) singer module and (7)vocal cord polyp. These varieties of the physiological malformations and mechanical manipulations constitute an impediment to the realization of melodious tunes. And for prospective musicians, the hindrance may impinge on the zeal to realization of ones talent to the fullest. The examination, treatment and cure of larynx deformities and misapplication rest with the medical otrohinolarygologist. As music makers, one needs to be vast in the physiology of the voice box so that care would constantly be taken to avoid damage to the sound box; without which all forms of lyric cannot be rendered into songs.

Inflammation of the voice box could be oedema fever and malaise and pain on speaking. Tumor in the voice box may not present systematic upset but there is redness and swelling and the hoarseness may persist, and it may become worse with the passage of time. Paralysis of the voice box may be defect /chronic disease. Acute laryngitis e.g. paralysis is often associated with acute inflammation of the nose, sinuses and chest. A careful non-medical singer could observe these physiological causes of hoarseness so that the doctors could be promptly contacted.

Consequences of Hoarseness on Musicians

Hoarseness; the improper use of voice and roughness of voice could be predicated by inflammation, tumor, polpy, paralysis and nodules of the larynx. According to Marshal and Oxlade (1972), Maxwell (1990) and Lepage and Murray (1998), these physiological problems present the following failures, types, signs and symptoms as presented in table 1 as follows:

Table 1: Hoarseness type, Signs and Consequences

Hoarseness type	Signs	Consequences
1.Improper use of voice	-Difficulty in speech, heavy breathing during speech. -Efforts at speech looks defined. -Craning the neck before speech is made. -Efforts speech shouting.	-Painful throat -Frustration -Resignation from speech or singing.
2.Roughness of voice	-Coarseness; not smooth voice. -Excessive vibration sensation with the Adam's apple.	-Painful throat as if the throat is tearing apart. -Pain at swallowing saliva.
3.Tumor	-Inflamed nodes -Sore throat	-Pain -Cough -The voice becomes a whisper.
4.Polyp	-Hypertrophy of the mucus membrane of the larynx -One vocal cord is affected at a time	-Periodic sudden loss of voice and also sudden return of voice.
5.Vocal nodules	-The vocal cords hit each other -Dropping the nodules below the cords.	-Periodic complete loss of voice. hoarseness
6.Paralysis of the larynx	-Toxic effects of diphtheria, influenza, typhoid fever and syphilis. -Injury such as a cutthroat or during operation on the thyroid glands.	-Voice becomes rough -Singer clears the throat Constantly before singing. -Throat aches and feels swollen. -A tickling sensation causes constant slight cough.

Source: Marshall, S. and Oxlade .Z. (2002) Ear, Nose and Throat nursing: London: Brawler Tindall and Maxwell D.D (1990). Practical Biology, Ibadan: Onibonoje press.

Table 1 above (hoarseness) presented a view of the delicate nature of throat; mouth and ear which demand health care that have to be done with caution because, those music students playing with one or two or more of the above hoarseness types may not be easily detected. Except the music lecturers/instructors have to note that some musicians that are plagued with hoarseness sometimes stop singing within the music practices. The position of the vocal instruments the tongue, trachea, larynx, epiglottis; lungs, palate and even the nose deserved adequate care and medical treatment. The problems associated with hoarseness are;

1. Improper use of voice could result in craning the neck before speech is made and therefore resignation speech machines and singing.
2. Improper use and care of the voice could result in speech shouting before such speech is heard thereby causing tiredness.
3. Roughness of the voice causes excessive vibration sensation with Adam's apple.

4. Tumor brings about sore throat that causes pain, cough and low voice as in whispering.

Mouth and ear may have to be watched with caution because, those music students playing with high pitch tone, or either one or two or more of the above hoarseness type may not be easily detected. Some music students who find themselves suffering from either of these problems may not come to school, choir or music practice venue until such ailments subside; without proper cure, care management and control of such erring throat problem(s).

Healthful Procedures in Voice Maintenance

Healthfully, the status of nutrition, care and activities favorable to health; healthy mind in healthy body is important for the musicians wellness. The physiological status of the music maker is required for a composed mind. The music maker requires peace of mind, freedom from stress, ability to maintain a focus, non-irritable, dynamic in thinking and has to be acceptable to the public. Music students require seeking approval from their parents before their indulgence in music training and indeed venturing into music trade.

Anatomically and physiologically; (1) the ears, nose and throat examination must be conducted for the music makers/music students constantly by visual observation (2) the ears, nose and throat examination is available at the ears, nose and throat department of the teaching hospitals in the nation. Music makers should assign the music student/ apprentice to this department for one month.(3) the students should have their ears, nose and throat checked. Fees charged for examination and treatment of diseases of the larynx

According to Ologe (2000) and Oladunmoye (2000), (a) Examination - N2, 000.00 (B4) cleaning - N4, 500.00 (C) operation - N15, 000.00. (4) The school authority or the proprietors of music classes should make the ear, nose and throat examination fees compulsory and be charged and included in students registration fees to forestall inadequate commencement of music lectures and practical in the laboratories.

These healthful strategies have become imperative because of ageing trends as Oyedeji (2009) postulated. The musical organs strength is great and performs efficiently between the ages of one (1) to 35 (thirty five) years. Many changes occur by way of physical imperilment due to the following features.

i. The bones become rigid, wrinkles set in.
ii. Hair begins to turn grey and thin out.
iii. Brain size reduces by 70% to 11%;
iv. The muscle shrinks; and muscle tissues degenerate into fatty tissues.
v. Joints become stiff and sometimes swollen;
vi. The lungs begin to take in less vital oxygen;

vii. The central nervous system (c.n.s.) slows down pace movement;
viii. The sensory organs of seeing, hearing, touching, tasting and smelling become less efficient.

This natural health decline had been noted to be rectified possibly by adequate nutrition. Martian and Coolidge (2009) nutrient and water (Adedeji 2009) however preferred the best ways by which human musicians would train his/her health for the musical organs to maintain their healthiness. (I) drinking of at least ten(10)glasses of water daily plus a pinch of salt and calcium, potassium and magnesium (ii) make the organs cool temperature possible (iii) maintain a clean accommodation and premises. Your rooms/flats/apartments/ houses should be well ventilated (iv) brush your teeth twice daily, wash twice daily and evacuate your bowels daily (v) As musicians take calcium regularly. Calcium is found in food like all greens, almonds, onions, carrot, lemon, lemon grass, tangerine beans, pumpkin seed, water leaf, basil leaf, (efinrin), cheese, plain yoghurt.

Nutritional substances that Nigeria are used to; that they consume in excess as habit is carbohydrate. It is worthy of note as Martin and Coolidge (2009) and Adedeji (2009) reiterated:

a. Carbohydrate (glucose) supply energy for the central nervous system- sugar consumption increases incidence of coronary heart disease – High sugar increase incidence of dental caries; loose teeth creates escape of air, that may decrease sound or mutilate sound production – diabetes mellitus is a disease of metabolism in which there is an inadequate supply of effective insulin – indigested lactose, in the large intestine results in cramps and diarrhea it may be advisable for prospective musicians to use carbohydrate wisely and adhere to protein, fat vitamins and water adequately. Protein – lean meat, fish, poultry and eggs (glycogen), dry legumes (dry peas and beans) Pea-nuts, milk and most cheese. These repair the worn out cells of the body and assist in production of young tissues. Fat – helps to maintain body temperature; also found to serve as shock absorber for heart and vital organs; provides energy when one is starved. Vitamins-oranges, pawpaw, pineapple, Agbalumo goin-goin, banana, guava, ase (pear), futu, tangerine function the following ways.
    i. Constructs bones of good quality
    ii. Co-coordination activities are enhanced
    iii. Controls the function of blood clotting
    iv. Aids muscular contraction
    v. Controls heart beat
    vi. Thyroxin regulate energy metabolism
    vii. Hemoglobin carries oxygen from the lungs to the tissue and some of the carbon dioxide from the tissue back to the lungs
    viii. Aids teeth development.

b. Mineral salt; common salt –maintains homeostatic of the body. Aids teeth development.

c. Water – regulates body temperature – heat is eliminated by means of evaporation of water from lungs and from the surface of the skin. (a) manage your time well (b) exercise regularly (c) relax (d) be positive (e) decorate your office with yellow to lift up your spirit and to energize you (f) Take lemon grass regularly (g) Eat onion and oats regularly (h) Avoid tobacco, alcohol, drugs (i) Take vitamins A,B complex C and E (j) Take minerals, potassium, calcium, selenium, zinc (k) Take plenty of fruits and vegetables (l) Avoid life style that is full of noise; don't tell lies, don't quarrel, stop worrying (m) Avoid overeating to prevent obesity (n) eat cholesterol low meat like chicken, turkey, snails, rabbits, crabs, shrimps, stockfish, fish and guinea fowl (o) Eat plenty of aloe Vera and garlic and basil (efinrin) (p) Avoid every stressful situation: do not be inordinately ambitious, learn to accept what God gives you with gratitude while you pray for more.

Statement Problem

Several youths attempt to make music as their career. Some students cannot succeed due to voice problems. Some students who study music in the tertiary institutions have not succeeded at making music production enjoyable for the public. Music makers are also not aware of the reasons why they haven't produced melodious songs. Some music makers have hoarse voices. Most youths that would have become great musicians in Nigeria are not too careful about the way they use their body. Nigerians eat what they see but not what is beneficial to their body. Nigerians are not aware of the state of their body at any time. Nigerians do not bother to find out :(1)The cause of hoarseness (2) The location of larynx, in hoarseness (3)The position of the vocal cord in the Musicians (4) Consequences of hoarseness due to misuse of the vocal cord (voice in dysphonic). Musicians learn to sing in several unapproved ways with wrong methods of practices.

Significance of the Study

The study is intended to teach music makers/music teachers the proper place/position/location of the vocal cord in a musician. It is also meant to sensitize them on the health measures to follow for proper music production for highest population acceptance. To appeal to the music making sense of Nigerian literate youths, the necessity to watch and try their vocal cords for the possibility of music making.And that music teacher may find the write up as supportive information for further researches on the relevance of voice box's health to music making in Nigeria.

Scope of Study

The research paper delimits the following; (1) Meaning of hoarseness i.e. the pathogenesis of hoarseness (2) The location of hoarseness in the music makers' larynx. (3) The anatomic apparatus concerned with hoarseness (4) The right position of the larynx in the musician (5) Comparison of vocal cords (6) Causes of hoarseness (7) Consequences of hoarseness due to issue of the voice(dysphonic).And choristers

detected reasons for hoarseness (8) Nutritional requirement of the musicians and (9) Health attitudes inimical to music production.

Research Questions

The following questions are asked to detect reasons for hoarseness in musicians.

1. Do the musicians (choristers) recognize their body organs connected to music making?
2. Do the musicians (choristers) perceive the rules guiding adequate vocal cord maintenance for phonation?
3. Do the musicians (choristers) take cognizance of the foods required for adequate music making?
4. Do the musicians (choristers) recognize activities that could hinder adequate music making?

Research Hypothesis

1. There is no significant influence in musicians (choristers) recognition of their body parts in connection to music making.
2. There is no significant influence in musicians (choristers) recognition of consequences of hoarseness types to music making.
3. There is no significant influence in musicians (choristers) recognition of food required for adequate music making.
4. There is no significant influence in musicians (choristers) recognition of activities that can hinder adequate music making.

Methodology

The research design for this study was a descriptive survey method. The method was approved as the best technique of deducing a huge inference from several variables administered on many respondents. The population for the study was two hundred (200) choristers randomly and stratified selected from Yagba-West and Yagba-East local government Areas of Kogi State. The instrument used for data collection was a researcher structured nutritional and hoarseness inventory. This instrument was validated by face and content validity four (4) sections. Each section has 6 items. The instrument was validated by face and content Validity. Four (4) PhD (2 Health Education) (2 music Education) lectures read through, edited and approved the content as adequate and comprehensive enough as covering theory of study. The reliability value 89r was determined by a test –re-test method of a pilot – study. The information (data) gathered was by the researchers. The choirmasters of 10 E.C.W.A/S.I.M. Churches were approached and given the structured nutritional and hoarseness inventory to fill. The researchers monitored the filling of the instrument. After the filling the researchers retrieved the inventories for analysis. Data gathered was analyzed using Spearman Ranking Order (S-Rho) statistical method at alpha 0.05level of significant at 199 degree of freedom.

Results and Discussions

The results of data analysis formed the basis discussions using the research hypotheses as guide:

Research hypothesis 1: There is no significant influence in Musicians (choristers) recognition of their body parts in connection to music making:

Table 2: S-Rho analysis on influence of body parts in Music Making

S/N	Variable Statement	RESPONSES			INFERENCE					
		Sex	Agreed X	Disagreed Y	ry	Rx-ry	D^2	Df	Hypo	R
1	Larynx is modified by the lips, tongue and palate to make phonation, speech and vocalization.	M	58 58.0	42 42.0	2	3	1	99	0.196<0.9988 = Rejected	Mmusicians do not significantly recognize organs of music
		F	49 49.0	51 51.0	2		1			
2	During phonation, the vocal cord meets along the entire length	M	65 65.0	35 35.0	1	2	9			
		F	49 49.0	51 51.0	1		4			
3	If the vocal cords do not meet, then there is hoarseness.	M	50 50.5	50 50.0	3.5	4	9			
		F	41 41.0	59 59.0	3.5	1	1			
4	Phase 1 hoarseness is caused by the laryngeal disease.	M	42 42.0	58 58.0	4	0	4			
		F	41 41.0	59 59.0	3.5	1	1			
	S-Rho critical =0.196, S-Rho calculated =$1-\frac{6ED^2}{N(N^{2}-1)}$ =$1-\frac{6X18}{100(9999)}$ = 0.999892						MTD^2 18			
	S-Rho critical= 0.196, S-Rho calculated =$1-\frac{6ED^2}{N(N^{2}-1)}$ =$1-\frac{6X20}{100(9999)}$ =0.99988						FTD^2 20			

Table 1 presents MTD^2 =18; DF = 199, M-S-RHO calculated (0.99); S-Rho critical = 0.196 and FTD^2 = 20; F-S-Rho= 0.999. The critical S-Rho < calculated S-Rho 0.196 < 0.999 & 0.999. The stated null hypothesis is rejected at alpha level 0.05 of significance and 199 degrees of freedom. Musicians (choristers) significantly recognize their body organs connected to music making. 65% (65) choristers (male) knew that for music (songs) to be produced the vocal cords must meet along their entire length (figure 1&2 above refers as Armstrong (1997) asserted.

Research Hypothesis 2: There is no significant influence of Musicians (chorister) recognition of consequences of hoarseness types to music making.

Table 3: S-Rho analysis consequences of hoarseness types to music making

S/N	Variable Statement	RESPONSES			INFERENCE						
		Sex	Agreed X	Disagreed Y	rx	ry	Rx-ry	D^2	df	Hypo	R
1	Improper use of voice type of hoarseness causes painful throat, frustration at swallowing and talking. The person can resign from talking & singing	M	3.5 35.0	65 65.0	2	6	-4	16	99	(0.196<0.998 & c. 997) = Rejected	Musicians do not feel rules for music making vocal cord maintenance and music making.
		F	33 33.0	67 67.0	2	6	-4	16			
2	Roughness of voice type of hoarseness causes throat tearing apart. Pain at swallowing saliva then erupts causing no singing, no talking.	M	25 25.0	75 75.0	4	4	0	0			
		F	15 15.0	85 85.0	5	3	2	4			
3	Inflammation type of hoarseness causes rise in temperature 39^0c or 102^0F and pain at swallowing.	M	37 37.05	63 63.0	1	7	-6	36			
		F	31 31.0	69 69.0	3	5	-2	4			
4	Tumor type of hoarseness cause coughing; makes voice become a whisper	M	30 30.0	70 70.0	3	5	-2	4			
		F	25 25.0	75 75.0	4	3.5	.5	.25			
5	Vocal modules type of hoarseness causes periodic complete loss of voice	M	15 15.0	85 85.0	5.5	4	1.5	2.5			
		F	10 10.0	90 90.0	6	2	4	16			
6	Paralysis of the larynx type of hoarseness causes rough voice, singers attempt to clear throat constantly and tickling sensation at the throat causes slight cough.	M	5 5.0	95 95.0	7	1	6	36			
		F	3 3.0	97 97.0	7	1	6	36			
7	Polyp type of hoarseness causes periodic loss of voice	M	15 15.0	85 85.0	5.5	2.5	3	9			
		F	55 55.0	45 45.0	1	7	-6	36			
	S-Rho cri. =0.196, df = 199, S-Rho cal. =1- $\frac{6ED^2}{N(N^{2-}1)}$ =1- $\frac{6X103.5}{100(9999)}$ = 0.998							MTD^2 103.5			
	S-Rho cri.= 0.196, df = 199, S-Rho cal. =1- $\frac{6ED^2}{N(N^{2-}-1)}$ =1- $\frac{6X112.25}{100(9999)}$ =0.997							FTD^2 112.25			

In table 2 above, S-Rho critical = 0.196, df = 199; S-Rho calculated M = 0.998; F = 0.997. The 0.196 < 0.998 & 0.997. The stated null hypothesis is rejected at alpha 0.05 level of significance and 199 degree of freedom. Choristers do not feel the rules guiding vocal maintenance in phonation. Choristers 75% males and female 85%

females do not believe that roughness of voice can make the throat to tear apart to cause pain in swallowing saliva to cause no singing even no singing and even no talking. Also 95% males and 97% females choristers are not aware that paralysis of larynx exists that can induce singers to coughing and clearing throat constantly. These discoveries negated the submission of Armstrong (1997) who would have opted for adequate anatomy and Physiology of nose, throat and ear for the musician (chorister) at the commencement of the singing practices for detention of music making apparatus defects.

Research Hypothesis 3; There is no significant influence in musicians (choristers) recognition of food required for adequate music making.

Table 4: S-Rho **Analysis On Food Required For Adequate Music Making**.

S/N	Variable Statement	Responses			Inference						
		Sex	Agreed X	Disagreed Y	rx	ry	Rx-ry	D^2	df	Hypo	R
1	Musician (chorister)'s food: water at least 10 glass of water plus one pinch of salt must be taken daily to soften the tissues in the throat,	M	3.5 35.0	65 65.0	5.5	1.5	4	16	99	(0.196<0.998 & 0. 996) = Rejected	Musicians do not take cognizance of food for music making
		F	55 55.0	45 45.0	5	2	3	9			
2	Minerals, calcium, potassium and magnesium from green leaves, almonds onions, carrot, lemons	M	65 65.0	35 35.0	2	5	-3	9			
		F	78 78.0	22 22.0	2	5	3	9			
3	Inflammation type of hoarseness causes rise in temperature 39^0c or 102^0F and pain at swallowing.	M	35 35.0	65 65.0	5.5	1.5	4	16			
		F	30 30.0	70 70.0	6	1	5	25			
4	Tumor type of hoarseness cause coughing; makes voice become a whisper	M	45 45.0	55 55.0	4	3	1	1			
		F	75 75.0	25 25.0	3	4	-1	1			
5	Vocal modules type of hoarseness cause periodic complete loss of voice	M	55 55.0	45 45.0	3	4	-1	1			
		F	65 65.0	35 35.0	6	3	-1	1			
6	Paralysis of the larynx type of hoarseness cause rough voice, singers attempt to clear throat constantly and tickling sensation at the throat causing slight cough.	M	75 75.0	25 25.0	1	6	5	25			
		F	85 85.0	15 15.0	1	6	5	25			
	S-Rho cri. =0.196, df = 199, S-Rho cal. =1- $\frac{6ED^2}{N(N^2-1)}$ =1- $\frac{6X70}{999900}$ = 0.998							MTD^2 70			
	S-Rho cri.= 0.196, df = 199, S-Rho cal. =1- $\frac{6ED^2}{N(N^2-1)}$ =1- $\frac{6X69}{999900}$ =0.997							FTD^2 69			

Table 3 above present S-Rho summary of food required for adequate music making. S-Rho critical = 0.196; df = 199; S-Rho calculated = 0.9996 (f) & (0.196 < 0.9998 & 0.9996). The stated null hypothesis is rejected at alpha 0.05 level of significance and 199 degrees of freedom, choristers do not take cognizance of foods required for music making. Majority of the choristers 65% & 70% of them would rather eat carbohydrate to satisfactory (taking too much rice, eba, garri, amala) and take too little water (35% males and 75% females and not eat protein to correlate with Adedeji (2009) and Martin and Coolidge (2009) who advanced 10 glassful of water daily for choristers, to be consumed with proteins like meat, fish, eggs and dry legumes. Really protein foods are to soften the body including the voice box (vocal cords) throat, lips teeth and tongue as these parts of the body are involved in phonation.

Research Hypothesis 4: There is no significant influence in Musicians (choristers) recognition of activities that can hinder adequate music making.

Table 5: S-Rho **Analysis An Activities That Can Hinder Adequate Music Making**

S/N	Variable Statement	Responses			Inference						
		Sex	Agreed X	Disagreed Y	rx	ry	Rx-ry	D^2	df	Hypo	R
1	Musician (choristers) should take ice block/excess cold water; this affects the heart and lungs to reduce body temperature.	M	55 55.0	45 45.0	1	9	-8	64	99	0.196<0.9987579 & 0 997) = Rejected	Musicians do not recognize activities hindering music making
		F	65 5.0	35 35.0	1	9	-8	64			
2	Musicians (choristers) should take alcohol, it affects the liver to cool down, but people say that it can cause liver cirrhosis but it could be a lie.	M	5 5.0	95 95.0	3.5	4.5	-1	1			
		F	3 3.0	97 97.0	5.5	5.5	0	0			
3	Musicians/choristers should expose chest to excessive cold; chest should not be always warm, hot chest may not disturb singing..	M	5 5.0	95 95.0	3.5	4.5	-1	1			
		F	0 0.0	100 100.0	5.5	1.5	4	16			
4	Musician/choristers could smoke cigarette, Indian Hemp, Paw-paw dried leaves to make him/her high for inspiration.	M	3 3.0	97 97.0	7	3	4	16			
		F	0 0.0	100 100.0	5.5	1.5	4	16			
5	Musician/choristers can leave the teeth red, brown, and black. He/she may not wash the mouth. Brushing the teeth can make it remove.	M	0 0.0	100 100.0	8.5	1.5	7	49			
		F	0 0.0	100 100.0	5.5	1.5	4	16			

6	Musicians should eat to become obese, fat people have sonorous voice. so he/she should be overweight.	M	5 5.0	95 95.0	3.5	4.5	-1	1			
		F	3 3.0	97 97.0	3.5	5.5	-2	4			
7	Musician /choristers can shout over/on top of his/her voice to clear the throat always. Mucus in the throat can be cleared always.	M	15 15.0	85 85.0	5.5	1.5	4	16			
		F	25 55.0	75 45.0	5	2	3	9			
8	Musicians could live in slum, dirty rooms and gutters to get inspiration like the Reggae Raspas.	M	0 0.0	100 100.0	2	5	-3	9			
		F	0 0.0	100 100.0	2	5	3	9			
9	Musicians/choristers can eat anything such as kola nuts or any drug that can induce inspiration.	M	5 5.0	95 65.0	5.5	1.5	4	16			
		F	3 3.0	70 70.0	6	1	5	25			
	S-Rho cri. =0.196, df = 199, S-Rho cal. =1- $\frac{6ED^2}{N(N^2-1)}$ =1- $\frac{6X207}{100(100^2-)}$ = $\frac{1242}{999900}$ = 0.9987579							MTD^2 207			
S-Rho cri.= 0.196, df = 199, S-Rho cal. =1- $\frac{6ED^2}{N(N^{2-}-1)}$ =1- $\frac{6X228}{100(100^2-)}$ = $\frac{1371}{999900}$ = 0.997								FTD^2 228.5			

Table 4 above, df = 199; S-Rho critical =0.196; S-Rho calculated =0.9987579 and 0.9986289. The S-Rho critical < S-Rho calculated. The stated null hypothesis is rejected at alpha 0.05 of significance and 199 degrees of freedom. Choristers do not recognize the activities that can hinder music making. indeed 55% males and 65% females would rather take ice block or cold water as they become thirsty during song practices; with the belief that cold water, and ice block cools the heart, lungs to reduce body temperature. Whereas, cold water, coca-cola, Maltina, Sprite or Yoghurts can compound the clogging of blood, to hinder phonation. In fact, Oyedeji (2009) recommended consumption of fatty foods to prevent too much coldness in the heart, lungs, spleen and liver. Lungs should always be in the normal body temperature 36^0c

Conclusion

Based on the results of data analysis and the discussions, it could be concluded as follows

1. 58% male choristers and 49% female choristers recognized that larynx is modified by the lips, teeth, tongue and palate to make phonation, speech and vocalization.

2. 69% female choristers and 63% male choristers are not aware that inflammation of the larynx causes rise in temperature to 39^{o}c or 102^{o}f ; so they may not visit the hospital to treat themselves; so they may be hindered from singing.
3. 75%male and 85%female choristers are aware that fruits assist choristers; so they are liable to taking fruits (oranges; pawpaw; pineapples etc)
4. 55% male and 65%female choristers who are addicted to cold drinks would recommend ice block drinking to cool their temperature; heart and lungs; which is a great and unhealthy practice.

Recommendation

Based on the conclusion drawn, it could be recommended thus;

A. Musicians (choristers) should attend E N T clinics to have their ear, nose and throat treated; cleaned and medication approved for them.
B. Choristers should be made to learn the anatomy and physiology of the ear, nose and throat, nutritional relationship to singing.
C. Musicians should keep themselves warm to be on 36^{o}c and 98^{o}f at all times.
D. Choristers (musicians) could be advised to take enough protein to give them good health in the body, soul and mind for music making.

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