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RESEARCH ARTICLE

Physical Activity and Non-communicable Disease Risk Factors: Knowledge and Perceptions of Youth in a Low Resourced Community in the Western Cape

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Abstract:

Background:

The youth's lack of knowledge and misconception on Physical Activity (PA) and Non-Communicable Diseases (NCDs) risk factors aid the growing burden of NCDs globally. This study explored the knowledge and perception of youth in a low-resource community in the Western Cape Province.

Methods:

A qualitative methodological approach was used for data collection, using a qualitative exploratory study design. Convenience sampling was used to select participants, aged 18-35 years old from Vrygrond in the Western Cape Province. Focused group discussions were steered by means of a semi-structured interview questionnaire to guide the discussion about perceptions and knowledge of PA and NCDs risk factors. Discussions were analysed using Atlas.Ti8.

Results:

A total of 22 female youth participated in this study. The majority of the participants were single (86.3%), unemployed (63.6%) and secondary schooling (72.7%) of the highest level of education. Results indicated that the participants had little knowledge about PA, but lacked sufficient knowledge with regards to NCDs. Time constraints, lack of interest, low self-esteem, lack of awareness, safety, and financial constraints, knowledge deficit, parental influence, peer pressure, and poverty were seen as a barrier to physical activity and NCDs risk factor.

Conclusion:

Findings from this study could formulate a policy at the provincial and national level, to provide cost-effective and sustainable educative program as an intervention which addresses youth misconception on physical activity and NCDs risks factor in the 21st century, especially among female youth residing in a low resource community in Western Cape.

Keywords: Physical activity, Non-communicable diseases, Knowledge and perceptions, Low resource community, Youth.

Article History

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1. INTRODUCTION

Non-communicable disease is a long duration illness that emanates from genetic, physiological, environmental, and behavioural characteristics put together [1]. NCDs such as Cardiovascular Disease (CVD), type 2 diabetes, cancer, and chronic respiratory diseases have been recognized as the leading cause of morbidity and mortality worldwide, for almost three decades [2 - 5]. The most recent NCDs Country Profiles indicated that in the year 2016, NCDs were responsible for 41 million (71 percent) of the world's 57 million deaths [1].

Furthermore, NCDs will account for five times as many deaths as communicable diseases in Low- and Middle-Income Countries (LMICs) by 2030 [6, 7] The rise in these NCDs usually manifests during mid-to-late adulthood and these NCDs are caused by four common, modifiable risk factors that are generally adopted earlier in life [8, 9]. The modifiable risk factors include tobacco use, physical inactivity, unhealthy diets and harmful use of alcohol, which could lead to overweight and obesity, high blood pressure, and high cholesterol [10 - 13].

An increase in the prevalence of physical inactivity has also been recognised as a 'global public health priority', despite evidence on the health benefits associated with regular

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physical activity [14, 15]. Physical inactivity is the fourth leading risk factor for global mortality and one of the most significant causes of disability and reduced quality of life [16, 17]. In the year 2012, physical inactivity accounted for 3.2 million deaths worldwide [18]. Physical inactivity typically includes sedentary behaviour such as sitting for too long, especially during television viewing [19]. Physical inactivity contributes to almost 21-25% of breast and colon cancer, 27% diabetes, and 30% ischaemic heart disease burden [13]. The rising levels of physical inactivity in many countries contribute to major implications for the occurrence of NCDs and the general health of the population [17].

Low and middle-income countries (LMICs) are especially affected by NCDs because nearly 80% of all NCDs related deaths occur in this region and it is expected to increase over the next decades [20]. Youth in low-resource communities in South Africa (SA) are faced with daily stressors, which limit their potential to become productive individuals [21]. Currently, the advent of physical inactivity, unhealthy diets, tobacco use, and excessive alcohol use has negatively impacted many lives, most especially the younger population [11]. These health behaviours, along with unhealthy lifestyle choices, are contributing factors to the increase in physical inactivity, obesity, and other NCDs. Female youth are increasingly facing serious health effects from engaging in unhealthy lifestyle practices [11]. Three out of five females in the Western Cape (WC) are classified as overweight (BMI = 25.0-29.9 Kg/m²) or obese (BMI = ≥ 30 Kg/m²) [22]. Tobacco use and harmful use of alcohol were also identified as common NCDs risk factors in the WC contributing to the increase in NCDs-related deaths among females [23]. Female youth are commonly reported as being less physically active than their male peers, placing them at a greater risk of developing chronic disease, due to poor lifestyle practices and their lack of knowledge [24, 25].

However, people's opinions, morals, understanding, and perceptions could have either a positive or negative influence on their behaviour. Increase in the knowledge of health benefits resulting from physical activity and NCDs could impact an individual's practices of routine PA and health. The Health Belief Model (HBM) theoretical framework is one of the most commonly applied theories of health behaviour and it is frequently used in health education and promotion [26]. The HBM was developed in the 1950s in the U.S. Public Health Services to explain people's behaviour related to health, physical and mental well-being [27]. The premise of the HBM is that an individual could take action to prevent, control or treat a health-related problem if that person: (1) feels that a negative health condition can be avoided, (2) has a positive expectation, that by taking a recommended action, he/she will avoid a negative health condition, and (3) believes that he/she can successfully take a recommended health action [28]. From observations, the main goal of the HBM framework was to effectively and efficiently prevent and manage diseases through communication for optimal behaviour change [29].

In an effort to prevent and manage the NCDs burden, the National Department of Health released the Strategic Plan for the Prevention and Control of Non-Communicable Diseases. Three main components to combat NCDs were outlined in the

plan and this includes healthy lifestyle promotion, health systems strengthening, as well as monitoring cases and risk factors [11]. For the Department of Health Strategic Plan for the Prevention and Control of NCDs to succeed in South African communities especially in a low-resourced community, it is important to investigate and understand people's knowledge and their perception of PA and NCD risk factors. Therefore, this study is aimed at exploring the physical activity and non-communicable disease risk factor knowledge and perception among female youth in a low resourced community in the Western Cape Province. The information gathered from this study may be used by the South African National and Provincial Government as well as Departments of Health, to develop cost-effective and sustainable intervention programs for female youth in a low-resource community. This may improve a healthy lifestyle by increasing PA levels in order to prevent NCDs risk factors among the female youth in WC Province, and SA at large.

2. MATERIALS AND METHODS

2.1. Research Design

This study adopted an exploratory qualitative approach with the use of focused group discussions (FGDs) to gain insight into the experience and meaning that female youth participants from a low-resourced community in the Western Cape Province ascribed as their understanding and perception of PA and NCDs.

2.1.1. Sample

A total of 22 female youth aged 18 to 35 years old were purposively selected from Vrygrond, a low-resource community in the Western Cape Province, to participate in this study. Of the 22 female youth, eleven were from Communiversity and eleven from the Sozo foundation. The eleven participants from the Sozo foundation were divided into two groups while eleven participants from Communiversity were in one group, making it a total of three groups. The Communiversity and Sozo Foundation is a non-profit organisation that creates opportunities for holistic development through education, skills, youth, and wellbeing and prepares young people for college and job placement, respectively. FGDs took place at Communiversity and the Sozo foundation in the Vrygrond community.

2.1.2. Data Collection

Data was collected in December 2017. A semi-structured question guide with questions focusing on the PA and NCDs risk factor knowledge and perception was utilized. The question guide was developed based on the literature and observations. All the questions were also reviewed by experts in the field. Prior to conducting the FGDs, informed consent forms as well as focus group confidentiality binding forms were provided for all participants to sign. The FGDs were facilitated by the lead researcher with a trained female assistant moderator and note-taker. The trained assistant moderator acted as the timekeeper and she was responsible for gathering handwritten field notes during all the FGDs. In addition, only the female youth between the ages of 18 and 35 years and

residing in the community of Vrygrond were included in the study.

2.1.3. Ethical Clearance

Ethical clearance and permission to conduct the study were obtained from the Humanities and Social Sciences Research Ethics Committee of the University of the Western Cape (Ethics clearance number HS17/9/5). All the FGDs were conducted in English and with permission from the participants, they were audio-recorded using an electronic voice-recorder. Each FGD lasted between 60-90 minutes. After each FGD, participants were served with light refreshments, as a gesture of appreciation for their time and participation.

2.1.4. Data Analysis

The theoretical thematic analysis was the data analysis strategy used for this study. Frequencies and percentages were used to determine the demographic characteristics of the participants. The Health Belief Model theoretical framework was used as a lens for interpretation of data to align key concepts and themes that arose in this study. Trustworthiness and reflexivity were used to review the information reported in FGDs and to assess the accuracy of findings in this study. Transcriptions were transcribed verbatim into English text and field notes were typed, and the contents were integrated into the main transcripts for data comprehensiveness. Each transcript was imported from Microsoft Office Professional Plus 2013 and exported into the ATLAS Ti8 software program [Computer-Aided Qualitative Data Analysis Software (CAQDAS) package for data analysis].

3. RESULTS

A total of 22 female youth participated in this study. All of the participants were between the ages of 18 and 35 years and English was the predominant (n=14, 63.6%) language spoken amongst them. The majority of the participants were single (n=19, 86.3%), unemployed (n=14, 63.6%), and secondary schooling of the highest level of education obtained (n=16, 72.7%) (Table 1).

According to HBM, an individual's health-seeking behaviour is influenced by their perceived susceptibility, and or severity to disease, as well as their perceived benefits and barriers to changing health behaviour [26]. The reasons for individual participation in health risk behaviours and the actions that they take to improve their health are demonstrated through this framework. Classification of the study findings based on the HBM Adapted from Glanz *et al.* [27] model is shown in (Table 2).

3.1. Perceived Susceptibility

The experience of the participants in this study with regard to perceived susceptibility was discussed under the following two themes: knowledge and perception of PA and knowledge and perception of NCDs. Not all the participants in this study were able to recognize and understand what the term PA meant. For some of the participants, the term PA was only known as two separate terms:

"I have heard about the word physical and activity but not the word combined".

Furthermore, it seems the participants had little knowledge of what the term PA implies, as one woman expressed the following:

"It's something that keeps you active... it's something that you need to move to do it".

Despite the fact that participants had some knowledge of PA, participants felt that by participating in PA, they would be discriminated against, because PA is not a common activity people engage in within the community:

"Because people think you are weird when you start living that lifestyle, they literally think you are weird and what is wrong with you, you probably are supposed to be living in Marina De Gama...that's how it is. It is very narrow-minded like that's how it is. If you start something, you will never see people exercising here on the field and like a bunch of ladies doing it, no... because you don't want to look weird, because you live in Vrygrond Capricorn Park, that's just how it is".

In addition, participants used words such as *health* and *diet* to explain NCDs. One of the participants said that NCDs:

"is a rare disease".

Some participants expressed that NCDs could be a disease that is kept private because people are afraid to disclose their health status to their family or community members:

"Like they are not spoken about often"; "A lot of people don't know about it"; "Like everybody doesn't speak about their status and diseases".

3.2. Perceived Severity

Participants' description of the health effects of physical inactivity and NCDs risk factors were highlighted. The participants identified overweight and obesity as the most common health effects of physical inactivity:

"Uhm I read on a page and it said, "obesity doesn't run in the family, it's because no one runs in the family".

In addition, body pain and aging were also mentioned as a part of the negative health effect of physical inactivity:

“If you have exercised, you don’t get old quicker than a person that doesn’t exercise...because a person that doesn’t exercise is always complaining about joint pains and stuff like that and uhm... and also when you do exercise, your mind...the way the mind works, it works differently than a person who doesn’t exercise...because they normally say if you do exercise, your brain thing’s whatever it is, I don’t know...”

Participants also thought that excessive PA participation could have a negative long term health effect and damage the body due to injury:

“Sometimes it’s like people overdo it... and sometimes like people hurt themselves and it can cause damage for the rest of their lives...”

On the other hand, participants seem to understand the health implications and severity of NCDs risk factors:

“You are going to get sick”; “...like your death will take long to come and then you will get sick...”

Participants further identified the cause of NCDs risk factors such as diabetes (consumption of fatty food and excessive alcohol drinking), cancer (from tobacco use), and physical inactivity as a common health effect:

“Like what also causes diabetic and high blood pressure is like how you eat fatty foods...”; “I would assume, okay I am going to get cancer if I am smoking - that’s a most definite. I am obviously going to end up with diabetes if I am just drinking too much and never exercising...”

Additionally, participants felt that many people who engaged in NCDs risk factors are unaware of the risks and repercussions of these long term health effects:

“They don’t know what alcohol does...it causes kidney problems...”; “...and what the alcohol does is, when the mother is pregnant, it causes the baby to be down-syndrome...”

Participants of this study were in many ways knowledgeable and aware of the negative effects of NCDs risk factors. They were able to recognize what the four common modifiable risk factors for NCDs were as well as the diseases associated with NCDs.

3.3. Perceived Benefits

Participants of this study perceived that a healthy lifestyle is attainable through regular PA participation, which in turn improves the quality of life:

“...to keep fit...”; “For you to think better and faster and stuff like that...”; “...being healthier...”

In addition to promoting a healthier lifestyle, regular PA can positively contribute towards achieving a healthier body weight:

“It can be good because if you were too thin now you gained some weight, now you can be living a better life”; “...so I would be excited, oh I am going to lose weight ...but not lose weight to lose weight, but to be, feel healthier because when I was skinner, I felt healthier...so that is the whole thing, because now if I walk, I feel out of breath a bit or whatever, ...”

Participating in regular PA has a positive influence on maintaining a healthy weight in order to lead a healthy lifestyle. Furthermore, participants perceived the benefit of PA as being fun:

“...miss like I was traumatized like I was on a four-day camp and every day like twice a day we went on long hikes miss and it strained our legs and we had to do it... like I won’t do it out of myself... but it was fun...”

Participants were of the opinion that purchasing and eating a healthy diet with participation in regular physical activity and or exercise are positively associated with NCDs prevention in order to promote a healthy lifestyle and quality of life:

“...you are eating properly...”; “...to be, feel healthier...”; “...buy food that’s healthy...”; “Go jogging every day...”

With regular PA participation, individuals can achieve positive health outcomes. In addition to promoting a healthier lifestyle, participants expressed that one could potentially save money if you do not purchase tobacco and alcohol products:

“Stop smoking and telling yourself you are wasting money...”; “...you don’t waste your money...”

Table 1. Participants demographic characteristics (n=22).

Demographics	Category	Frequencies
Language	English	63.63
	Afrikaans	22.72
	isiXhosa	13.63
Marital status	Single/never married	86.36
	Married	4.54
	Divorced	4.54
	Widow	4.54
Education	Secondary School	72.7
	Diploma and above	27.3
Employment status	Employed	36.36
	Unemployed	63.63

Table 2. Classification of the research findings based on the HBM concepts, theme and subthemes

HBM Concept	THEMES	SUBTHEMES
Perceived susceptibility	Knowledge and perception of PA	<ul style="list-style-type: none"> • Familiarity • Discrimination
	Knowledge and perception of NCDs	<ul style="list-style-type: none"> • Ignorance • Stigma • Poverty
Perceived severity	Health effects of physical inactivity	<ul style="list-style-type: none"> • Obesity and overweight • Effects of brain function and aging • Prone to injury
	Health effects of NCDs risk factors	<ul style="list-style-type: none"> • Causes illnesses and death • Increases risk of disease • Lack of threat appreciation
Perceived benefits	Benefits of PA	<ul style="list-style-type: none"> • Promotes a healthier lifestyle • Weight Control • Recreational
	Benefits of preventing NCDs risk factors	<ul style="list-style-type: none"> • Promotes a healthier lifestyle • Saves money
Perceived Barriers	Barriers to PA participation	<ul style="list-style-type: none"> • Time constraints • Lack of interest • Low self-esteem • Safety • Low awareness of opportunities
	Barriers to preventing NCDs risk factors	<ul style="list-style-type: none"> • Financial constraints • Convenience • Knowledge deficit • Parental influence • Peer pressure • Poverty • Lack of authoritarian

3.4. Perceived Barriers

Participants in this study identified barriers to PA participation and NCDs risk factors prevention. The barrier mentioned includes time:

“The time also has something to do with it because you, like, like for instance most of the people that are staying in Vrygrond most of them are single parents, so they go and work, then when they get home, they need to see that there is food, they cook, it is a lot of stuff that

they have to do. For instance, like talking about me now, because I won't have time like an hour and a half to go sit in the gym while I know that my kids are unattended to at home and stuff like that. So if it would be something that 30 minutes at least, but an hour and a half are too much.”

Another barrier that emerged from the FGD was low self-esteem. Some of the participants stated that they had difficulty in engaging in PA due to their body image and lack of self-confidence:

"I feel weird about it... I feel I'm skinny yes, probably people think Ja you look good...but I feel like no, no. Like yes everyone is looking at me, thinking, so why are you here? You don't need this...why are you showing off... I always feel like that..."

Safety was also a major issue for the majority of the participants coupled with a lack of awareness with regards to the opportunities and facilities and programs available in the community for sport and recreational purposes. Often they would have to travel to neighbouring communities to join their sports clubs or PA programs:

"...you are not safe but the thing is miss, there is not a lot of programs like for that and people don't know about programs that they are..."

Being unable to afford healthy fresh food which was more expensive compared to when buying unhealthy food from the local Spaza shop (street vendors) was viewed as a barrier:

"...the stuff that you use, that you should use like she uses coconut milk or olive oil, that stuff is usually expensive..."

"...I buy both...I buy junk food because I have kids who like to nibble on chips and stuff like that, so I buy that stuff and I buy the healthy food...but when I am cooking then in whatever I am cooking there is a lot of veggies and less of the starch so they would have their starch but I will have my veggies and my piece of meat... and then when I look at my slips, the veggies cost, the healthy stuff cost less than the fried chips, all the chocolates...all your junk food...that's the expensive stuff..."

Other barriers mentioned were fear of change, support, poor decision, and knowledge:

"...there's a lot of people in this community they would like to see a change, but they are like so afraid of, okay like I am going to do this...but like of that failure part of everything or like what if it doesn't work out or what if I don't have the support or whatever the case might be...but if you are more knowledgeable...let's say I don't have anyone in my family that has diabetes, my uncle he is so fit, but he has cholesterol and I am like a dude how did you get that and like he is healthy, eating healthy but he still has that... so for me, it's like if you have knowledge of it and life experience about it then you can teach someone on the different like do's and don'ts..."

Parents and peers in the community also contribute and encourage unhealthy habits, as they could send their children, who are under the drinking and smoking age on errands, to purchase alcohol and cigarettes at the spaza shop, making it effortlessly for underage youths to engage in substance abuse. One of the participants expressed that she was rejected by her peers due to her unwillingness to be part of the drinking group:

"Because me and friends when they are drunk and then when I stay with them then say you must take one glass and then I say no I don't drink, then I when I was growing up I didn't drink, so I can't drink now... so then they say no man, it's better if you must go..."

The majority of participants see unemployment as a barrier, which allows them to sit at home at all times, leading them to alcohol abuse, having it in mind that could help them forget and overcome their problems. On the other hand, laws and regulations around alcohol and tobacco sales are not strict enough especially in the communities. This then contributes to the abuse of these substances among the youth:

"Like people that are sitting at home, they like drinking every day. They don't eat food, they just drink. They live for alcohol, so they don't buy food, they buy wine...but sometimes alcohol is taking their problems away...but it doesn't..."

"... our government law is weak".....

4. DISCUSSION

This study explored the knowledge and perception of PA and NCDs risk factors among female youth of a low-resourced community in the Western Cape Province. Although several studies [30 - 33] have examined the knowledge and perception of PA and NCDs risk factors, this is the first study that explored the knowledge and perception of PA and NCDs risk factors among female youth in a low-resource setting. The Health Belief Model was used as a contextual framework for explaining the knowledge and perception of individuals on PA and the risk factors for NCDs [27, 32]. The health belief model has been understood to be a hypothetical model that could be used to monitor health promotion and disease-avoidance agendas. The HBM model deals with the enlightenment and expectations to change health behaviours by an individual [26].

This study showed that the participants had little or no knowledge of PA and NCDs. The enlightenment and the expectation to change health behaviours could depend on a person's knowledge and understanding. Educational attainment seems to play a big role in how individuals subjectively perceived the risk of acquiring the disease. This corroborates the findings of Kaba *et al.* [31] who investigated age-group differences in risk perceptions of non-communicable diseases among adults in South Africa and found that more than half of the study participants did not complete secondary education.

Hossainpoor *et al.* [34] also reported that a low level of literacy could be one of the leading factors influencing unhealthy risk behaviours among individuals. The participant's poor perception of NCDs risk factors is of concern. Individuals who do not perceive themselves at risk underestimate the consequences of unhealthy behaviour and are not aware of the benefits associated with behavioural change [27, 35, 36].

Other factors such as discrimination, ignorance, stigma, and poverty could make an individual vulnerable to illnesses and diseases. However, there has been an association between engagement in physical activity and cultural discrimination, especially where structured and unstructured type of physical activity seems not a way of life. Participants opined that people who participate in PA are often discriminated against and stigmatised, sometimes based on the assumption that the person is unhealthy and impoverish. Individual experience with cultural or societal discrimination could lead to harmful health actions connected with unhealthy behaviours such as physical inactivity, harmful use of alcohol and substance use, tobacco use, and unhealthy diets [37].

Considering the perceived severity, the participants of this study felt that the consequences of physical inactivity and NCDs are overweight and obesity, brain function and aging, injuries, illness and death, and increased risk of disease, and lack of risk awareness. Obesity is a worldwide public health concern and a risk factor for non-communicable diseases. In South Africa, obesity is rife among youths and continues to increase. The negative effect of obesity on well-being could be psycho-physiological in nature, with a combined effect that could lead to some injuries and increase morbidity and mortality. This required a holistic approach intervention program in its prevention either by the individual, community, and government, to create a supportive environment [38] for the youths. Furthermore, participants perceived that the benefit of participating in physical activity includes the promotion of a healthy lifestyle, reduction in body weight, recreational purposes, and to save money. Studies have shown that there are short and long term significant positive effects associated with the involvement in physical activity [39 - 41]. It has also been reported that participation in physical activity and other health promotion programs could reduce health costs among individuals [42].

Barriers such as time constraints and lack of interest were identified as some of the major reasons for participating in physical activity among the participants [43]. Others were low-self-esteem, safety and lack of awareness of the opportunities that could be realised from participating in physical activity. In addition, financial constraints and knowledge deficit were some of the barriers related to the prevention of NCDs risk factors. The findings of this study corroborate the findings of Gowani *et al.* [30] who found personal uncertainty, defeat, lack of danger, inadequate knowledge of health education and health care facilities, and financial constraints as major barriers to preventing NCDs among people. Other barriers stated by the participants of this study were conveniences, poverty, parental influence, peer pressure, and lack of decisions making. The HBM framework used in this study provides some implications for future interventions to address the perceived barriers and

build on the benefits and cues to action to motivate behavioural changes among youths, especially females.

The strength of this study is that this is the first time a study on the knowledge and perception of physical activity and non-communicable disease risk factors in female youth in a low resourced community in the Western Cape would be explored. The limitations of this study were that, firstly, the focus group interviews were conducted in the English language, which could serve as a barrier in multilingual settings. This could limit the focus group descriptions of the participant's knowledge and perception of PA and NCDs risk factors. Secondly, only female youth from a low resourced community participated in this study. Therefore, the findings of this study should be interpreted with caution and should not be generalised.

CONCLUSION

This study provides insight into the knowledge and perception of female youth in a low-resource community with regards to PA and NCDs risk factors. This investigation aims to create awareness and provide information with regard to the current knowledge and perception of female youth in a low-resource community in the Western Cape Province. Findings from this study could formulate a policy at the provincial, and national level, to provide a cost-effective and sustainable educative program with an intervention that addresses youth misconception on physical activity and NCDs risks factor in the 21st century, especially among female youth residing in a low resourced community in Western Cape Province.

LIST OF ABBREVIATIONS

NCDs	=	Noncommunicable Diseases
PA	=	Physical Activity
HBM	=	Health Belief Model
LMIC	=	Low and middle-income countries
FGD	=	Focus Group Discussion

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The research was approved by the University of Western Cape Research Ethics Committee (Ethics clearance number HS17/9/5) and Helsinki Declarations were followed.

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

All the participants who participated were informed verbally about the study and those who gave written informed consent were enrolled. The participants also verbally agreed to tape-record their voices. Data collected was saved in password-protected computers.

FUNDING

None.

AVAILABILITY OF DATA AND MATERIALS

Not applicable.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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