



THE RELATION BETWEEN LEISURE ACTIVITIES AND GLYCEMIC LEVELS OF DEAF ADULTS

A RELAÇÃO ENTRE ATIVIDADES DE LAZER E NÍVEIS GLICÊMICOS DE ADULTOS SURDOS

LA RELACIÓN ENTRE ACTIVIDADES RECREATIVAS Y NIVELES DE GLUCOSA DE ADULTOS SORDOS

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Objetivou-se verificar a associação entre atividades de lazer e os níveis glicêmicos de adultos surdos. Estudo transversal, realizado com 36 adultos surdos em uma escola de Audiocomunicação, utilizando-se um questionário semiestruturado. Efetuaram-se os testes de Qui-quadrado, Fisher e Coeficiente de Contingência. A média da glicemia capilar em jejum apresentou-se próxima dos valores considerados normais, porém, há participantes com nível glicêmico de risco. Os participantes com os níveis glicêmicos alterados totalizaram 11,1%. Verificou-se associação entre a glicemia de pessoas surdas com as atividades de lazer: fazer compras ($p=0,034$) e visitar parentes ($p=0,012$). As atividades de lazer podem influenciar os níveis glicêmicos de pessoas surdas, devendo os enfermeiros considerarem o estímulo e orientação das atividades de lazer no processo de enfermagem, como uma intervenção com potencial para promover a saúde e prevenir as implicações causadas por níveis glicêmicos alterados.

Descritores: Enfermagem; Surdez; Atividades de Lazer; Índice Glicêmico.

The aim was to check the association among leisure activities and glyceimic levels of deaf adults. Transversal study made with 36 deaf adults in a school of audio communication, making use of a semi-structured questionnaire. Chi-square, Fisher and Contingency Coefficient tests were used. The capillary glyceimic average in unfed subjects showed to be close to values considered usual, however, there are participants with glyceimic levels of risk. Participants with altered glyceimic levels totalized 11.1%. The association among deaf glyceimic people having leisure activities was verified: go shopping ($p=0.034$) and visiting relatives ($p=0.012$). Leisure activities may influence glyceimic levels of deaf people, and nurses are supposed to consider stimulating and orientating the leisure activities as nursing processes, as an intervention potentially able to promote health and prevent implications caused by altered glyceimic levels.

Descriptors: Nursing; Deafness; Leisure Activities; Glycemic Index.

El objetivo fue investigar la relación entre actividades recreativas y los niveles de glucosa de adultos sordos. Estudio transversal, con 36 adultos sordos en una escuela audiocomunicação, utilizándose cuestionario semiestruturado. Se realizaron las pruebas de Chi-cuadrado, Fisher y Coeficiente de Contingencia. La media de glucemia capilar en ayunas presentó valores normales, pero, hubieron participantes con nivel de glucosa de riesgo. Los participantes con los niveles de glucosa cambiados sumaron 11,1%. Se observó asociación entre la glucemia de los participantes con las actividades recreativas hacer compras ($p=0,034$) y visitar a sus familiares ($p=0,012$). Las actividades recreativas pueden influir en los niveles de glucosa en personas sordas, los enfermeros deben tener en cuenta estímulo y enfoque de las actividades recreativas en el plan de cuidados, como posible intervención para promover la salud de personas sordas y prevenir implicaciones causadas por los niveles de glucosa.

Descritores: Enfermería; Sordera; Actividades Recreativas; Índice Glucémico.

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INTRODUCTION

The prevalence of impaired people, in a worldwide range, is approximately 10% of the population⁽¹⁾. In Brazil, the data from the demographic census made in 2010, showed that such prevalence reached 14.5%. Of those, 5,735,099 people presented problems concerning auditory loss, thus configuring a problem of public health⁽²⁾.

The subjects with hearing problems are classified with slight/moderate deafness, characterized for presenting a hearing loss of 70 decibels at the most, or people with severe, profound deafness whose hearing loss is superior to 70 decibels, causing a considerable difficulty to distinguish sounds and understand oral language⁽³⁾.

Hearing impairment (HI) can be manifested at any time of life. Among the several causes of this impairment, old age and infection of the inner, middle and outer hearing are outstanding. In the children, the persistent media otitis is reported as one of the most related factors to this problem⁽⁴⁾.

The HIV/Aids is another cause of the HI approached in a integrative revision of the literature, due the use of the antiretroviral therapy⁽⁵⁾. Furthermore, deafness can result from genetic mutation. In this sense, researches mention the mutations A1555G and C1494T, caused by ototoxicity by amino glycosides⁽⁶⁾.

This mutant possibility leads to the need of the nurses to know the adverse effects of the medicine administrated by their team, and the care that needs to be offered to the children with genetic anomalies specific of the hearing system. In a report of investigation on the training of the nurse for the care with the children with anomalies, it was observed that 159 (93%) think that this training is necessary in order to provide nursing care⁽⁷⁾.

The deaf subjects end up facing difficulties in their socialization⁽⁸⁾, especially due to difficulties of communication and to the attitudinal barriers⁽⁹⁾ and

unfavorable social economic conditions. In this context, the access to sports, culture and leisure is jeopardized, for those who are impaired, including deaf people⁽¹⁰⁾.

The leisure, the sports and the culture are interrelated and many times, an expression of the other. In this context, the activities of leisure are understood as those actions developed by subjects during the time established for pleasure having the objective to rest from the activities of work⁽¹⁰⁾.

The exclusion of a good part of people with hearing impairment, from the activities of leisure is worrying, once they are fundamental for the human emancipation and the citizenship of the subjects⁽¹¹⁾, and also to optimize the perfect functioning of the body functions, once when moving during leisure improves the use of energy and functionality of the circulatory and musculoskeletal systems⁽¹²⁾.

From the presupposition that the activities of leisure can influence the glycemic levels, these high levels of blood glucose are related to the development of chronicle non-transmissible diseases⁽¹³⁾. So the following questions were made under this research: which leisure activities are practiced by the deaf people? Which activities of leisure are able to influence the glycemic levels of deaf adults? So, the association between the activities of leisure and the glycemic levels of deaf adults was verified.

The study is justified due to the thematic of the people with such impairment being inserted in the Agenda Nacional de Prioridades de Pesquisa em Saúde⁽¹⁴⁾ (National Schedule of Priorities of Research in Health) and by the potentiality of the investigation to offer subsidies for the planning of the nursing assistants destined to deaf people, so it is important that these nursing professionals know the relation between the activities of leisure and the levels of blood glucose of this segment of the population.

METHOD

The theoretical reference used in this study was communication, in the perspective of identification of the association between the activities of leisure and the glycemic levels of deaf adults. It is a descriptive, cross-sectional study with quantitative approach made from March 2011 to July 2012 at the Escola de Audiocomunicação Demóstenes Cunha Lima (EDAC) (School of Audio Communication), situated in Campina Grande, Paraíba, Brazil.

The EDAC was created in 1983. It is currently linked with the government of the state of Paraíba and works as a training extension and research center of the courses of university degree in the area of Pedagogy and Education. This school is characterized by bilingual teaching: Sign language and Portuguese developed in eight classrooms by an interpreter and four qualified teachers of sign language.

Among the 290 deaf students enrolled at the EDAC, 36 of them were chosen at random, for following the criteria of inclusion: to be at least 18 years old, not to present any other kind of impairment, to present preserved cognitive function. The students who although attending EDAC classes, but living in neighboring counties of Campina Grande, Paraíba, Brazil, were excluded.

The data collection occurred in two stages: 1) Application of a semi-structured questionnaire with questions on the social demographic aspects and the practice of activities of leisure, as follows: to have home visits, go shopping, listen to the radio, have access to printed newspaper, walk around the neighborhood, go to the cinema and theater, participate in religious or communitarian meetings, go to games, practice sports, visit friends, visit relatives, sew and/or embroider, play cards and/or chess.

It is necessary to clarify that the variable 'listen to the radio' is pertinent in this study, once the dance, at the sound of a radio, is a common practice at EDAC. The rhythm of the music is felt by the students through the

vibration of sound waves from the floor and on the body during the classes. Each choreographed rhythm is rehearsed repeating the movements demonstrated by the dance teacher.

This explanation is also supported in the biography of Beethoven, a genius of music that, when he became deaf, he used a wooden drumstick placing one end between his teeth and the other fixed to the box of resonance of the piano in order to feel the vibrations⁽¹⁵⁾.

In the application of this instrument, it was up to the interpreter of sign language to show the deaf subjects each question formulated in the instrument, and verbalize to the researches the answers given by the deaf, concerning the socio-demographic data and practices of activity of leisure. 2) Measuring of the blood glucose of each participant, which showed to be a variable at the end of the study being a characteristics dichotomized in normal or altered stages. In this stage, the interpreter of sign language was in charge of intermediating the researchers-deaf subject dialog making communication possible as well as the comprehension of the participants regarding the procedure, their doubts on the indication of the test and the meaning of its results.

For the measurement of blood glucose, day and time were scheduled at school; the participant had to be unfed for at least, eight hours. The blood glucose was analyzed through a digital glucometer, a lancing device and its respective lancet, graded from one to three in a crescent degree of depth of penetration (depth: 1 = minor; 2 = average; 3 = major). This grading depended on the body mass index of the participant. The punctures were made on the palm face of the distal phalanx of the third finger of the right hand. Glycemic level of 99mg/dl was considered normal; and values with higher glycemic level, ≥ 100 mg/dl⁽¹⁶⁾, were considered altered glycemic level.

The data were grouped, organized and received descriptive statistic treatment using the Statistical Package for the Social Sciences (SPSS) program, version 17.0 for Windows, where the statistics tests were made. In order to evaluate the association among the variables, the Chi-square test was used, and the F of Fisher was considered in those figures below 5 and the Coefficient of Contingency for the degree of association considered the following parameters: $c \geq 0.750$ = strong association; 0.500 a 0.749 = moderate association; ≤ 0.499 = weak association. The investigated associations considered the intervals of confidence in 95% ($p < 0.05$).

Regarding the ethical aspects, the study happened after the approval of the Committee of Ethics in Research of the Universidade Estadual da Paraíba, under CAAE no. 0700.0.133.000-11, and the guidelines of resolution 196/96 of the National Council of Health were complied with. The participants, after being clarified on the research and the guarantee of anonymity and secrecy, signed the Informed Consent Form.

RESULTS

36 deaf subjects participated in this study, being 23 men and 13 women. The age average was 23.8 years (± 5.06 ; $X_{\min}=18$, $X_{\max}=35$). Concerning schooling, 50% had grade school and 50% high school. Regarding marital status, 86.2% were single and 13.8% lived with a partner. Regarding their *per capita* income, it was observed that 75% lived on one to two minimum wages and 15% on more than two wages. In the period of this study, the minimum wage corresponded to R\$ 678.00 (Six hundred, seventy eight reais), equivalent to the average of the variation of the dollar, in the same period, of \$ 384.68 (Three hundred and eight four dollars and sixty eight cents).

According to table 1, the average of capillary blood glucose of unfed participants presented values considered normal, but there are participants with

glycemic level of risk. The participants with altered glycemic levels represented 11.1% of the sampling.

Table 1 - Values of capillary blood glucose of unfed deaf adults. EDAC. Campina Grande, PB, Brazil, 2012

Measures	Capillary blood glucose of unfed subjects	
	Mean	Standard Deviation
Central Tendency	Mean	88.50
	Median	91.00
	Mode	95.00
Dispersion	Minimum	67.00
	Maximum	104.00
	Standard Deviation	9.317
	Percentile 25	81.00
	Percentile 50	91.00
	Percentile 75	95.00

In Table 2, the association between blood glucose in deaf people and the activities of leisure was noticed: going shopping ($p < 0.05$) and visiting relatives.

Table 2 - Association among activities of leisure and blood glucose levels of deaf adults. EDAC. Campina Grande, PB, Brasil, 2012

Activities of leisure	Blood Glucose				χ^2	p^*	c^\dagger
	Altered		Normal				
	n	%	n	%			
Have home visits							
No	1	20.0	4	80.0	0.383	0.536	0.116
Yes	3	10.3	26	89.7			
Go shopping					4.502	0.034	0.342
No	2	40.0	3	60.0			
Yes	2	6.9	27	93.1			
Listen to the radio**					0.146	0.703	0.065
No	2	10.0	18	90.0			
Yes	2	14.3	12	85.7			
Access to printed newspaper					1.754	0.185	0.221
No	3	20.0	12	80.0			
Yes	1	5.3	18	94.7			
Walk around the neighborhood					0.054	0.816	0.040
No	1	14.3	6	85.7			
Yes	3	11.1	24	88.9			
Go to cinema and theater					0.210	0.646	0.078
No	3	13.6	19	86.4			
Yes	1	8.3	11	91.7			
Participate in religious meetings					0.266	0.606	0.088
No	2	15.4	11	84.6			
Yes	2	9.5	19	90.5			
Participate in communitarian encounters					1.290	0.256	0.191
No	2	22.2	7	77.8			
Yes	2	8.0	23	92.0			
Go to games					2.595	0.107	0.266
Yes	3	23.1	10	76.9			
No	1	4.8	20	95.2			
Practice sports					1.133	0.287	0.180
No	3	17.6	14	82.4			
Yes	1	5.9	16	82.4			
Visit friends					2.399	0.121	0.257
No	2	58.6	5	71.4			
Yes	2	7.4	25	92.6			
Visit relatives					6.384	0.012	0.398
No	2	50.0	2	50.0			
Yes	2	6.7	28	93.3			
Sew and/or Embroider					0.383	0.536	0.106
No	3	10.3	26	89.7			
Yes	1	20.0	4	80.0			
Play cards and/or chess					0.672	0.412	0.139
No	3	15.8	16	84.2			
Yes	1	6.7	14	93.3			

*p=value of significance (< 0.05); $^\dagger c$ =coefficient of contingency **vibration of the sound waves

DISCUSSION

The conditions of deafness create a barrier of communication, forcing the subjects to look for alternatives to communicate, such as the use of visual signs, in the attempt to minimize such problem. Besides that, because it incurs in subjects from early age and is prolonged throughout his life, it is understood as an important problem of public health which can generate social and economical problems⁽¹⁷⁾. In this context, confirming the literature⁽¹⁸⁾, it was evident in the present study that most of the subjects are young adults, in a productive age, with low schooling and surviving with low *per capita* income. In a study made in the United States of America, it was identified a higher frequency of deaf subjects with a high level of schooling (46.8%), with ages ranging from 30 to 59 years old (58%), but employed (68.8%)⁽¹⁹⁾.

Therefore, the social economic impact which occur is observed, especially on economically active subjects, at the top of their insertion in society which represents an economical, social, family and psychological wearing for the deaf subjects, their family members and the state itself. That is why it must be considered that the consequences of deafness go beyond the matters of communication. The process of social insertion depends on social and economical conditions of the subject/family such as the availability of resources and capacity to understand their civil rights. So, subjects with low schooling and income, being inserted in a society turned to production and consumption are marginalized and they consider themselves unable, jeopardizing their psychological and physiological conditions⁽²⁰⁾.

So, when planning the nursing assistance to deaf subjects, the nurse will have difficulty concerning the communicative process, which directly affects the care⁽¹⁷⁾. But, care must be taken regarding the context in which this subject lives, which goes through merely physiological questions. Because of that, identifying the social demographic profile is relevant in the planning of

the Nursing Process even if the prioritarian problem presented is of physiopathological condition.

Concerning the physiological aspects of the participants of the study, and despite of the fact that the average of the capillary blood glucose in unfed subjects shows registers considered normal, there are participants with high glycemic level of risk. A study made with 5,742 deaf subjects identified 9.5% of prevalence of *Diabetes mellitus*⁽¹⁹⁾. It should be considered that according to the Brazilian Society of Diabetes, the test of capillary blood glucose identifies the instantaneous glucose level, being considered altered the value of blood glucose superior to 100 mg/dL for the subjects without previous diagnosis of diabetes; for the subjects with diabetes the therapeutical target is to keep the blood glucose level below 110mg/dL⁽²¹⁾.

The risk of altered glycemic levels is related to diabetes, which is a metabolic disease characterized by hyperglycemia and associated to complications, disorders and insufficiency of several organs, especially eyes, kidneys, nerves, brains, heart and blood vessels. It can be resulting from faults in the secretion and/or action of insulin, involving specific pathogenic processes, for example, the destruction of beta cells of the pancreas, resistant to the action of insulin, disorder of the secretion of insulin, among others. Therefore, it is classified as one of the main diseases causing cardiovascular disorder⁽²¹⁾.

For that reason the identification of associations between the glycemic levels and the performance of activities of leisure is congruent with the proposals of the Health Department to prevent and control the diabetes and related diseases. So, physical activities, present in part of the action of leisure, contribute for the metabolism as a whole, also reducing the incidence in morbi-mortality due to cardiovascular diseases⁽²¹⁾. However, many times, the access to leisure is marked by difficulties. A study made with North American deaf

subjects showed that 76.9% of them did not have time to develop activities of leisure⁽¹⁹⁾.

In the present study, the association between the blood glucose in unfed deaf subjects and two kinds of activities of leisure, which were going shopping and visit relatives, were verified. First of all, considering the physiological matters, these two activities require low physical effort, but contribute to their physical mobility, which requires muscular movement, which in turn activates the muscular, skeletal and circulatory system, which contributed to the general function of the body, energetic expenditure and maintenance or reduction of the glycemic levels⁽¹²⁻²¹⁾.

Even so, the nurse must consider that the difficulty or incapacity to perform these activities of leisure can also be related to jeopardized socialization, once many times the subject is seen by society, and also by himself, as someone different, which contributes for his isolation⁽⁸⁾. This is due mainly to two reasons; first, by the impossibility of coding his thoughts through language⁽⁹⁾, second, due to his own attitudinal barriers, bearing in mind that to solve such a problem it is necessary that the managers of health and the society adopt a practice centered in resolute actions which must be the transformers of attitudes and behaviors in the interpersonal relations⁽⁹⁾.

As practical implication of this study for the nursing actions, it is necessary to highlight the need to incentivize the activities of leisure to the deaf subjects, in order to guarantee, besides socialization, activities which promote the maintenance of the physiological functions, such as the glycemic control. It is a relevant finding, keeping in mind that the assistance of the nursing professionals to this demand usually goes thorough matters which are merely related to communication. The socio economical conditions are also relevant in the planning of the process of nursing, so it is expected that the nurse identifies the real needs of these subjects in a conscious, critical and reflexive

way, in order to provide the promotion of health and quality of life for this social segment.

CONCLUSION

Despite the limitation of the study regarding the small sampling size, reducing the power of generalization of the results, an association between the activities of leisure and the glycemic level of deaf adults was observed.

The main contribution of this study is to point the need of the nurses to consider the stimulus and orientation of activities of leisure in the process of nursing as an intervention potentially able to promote the health of the deaf people and prevent diabetes and its organic sequels caused by altered glycemic levels.

The socialization of the data can stimulate the outbreak of other researches in the area, an important factor facing the need of studies in order to deepen the knowledge from the difficulties and needs of deaf people. Besides that, it is expected that this study provides subsidies to the health professionals so that they can develop actions which contribute to a better quality of life of these people, as well as actions of prevention of diseases resulting from high glycemic rates.

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COLLABORATIONS

França ISX and Aragão JSA contributed for the conception, design, writing, critical revision and final approval. Coura ASC, Silva JF, Cruz GKP and Vieira CENK contributed for the writing, critical revision and final approval.

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