ORIGINAL ARTICLE

RISK FACTOR FOR DYSLIPIDEMIA IN BRAZILIAN AND INTERNATIONAL UNIVERSITIES*

FATOR DE RISCO DISLIPIDEMIA EM UNIVERSITÁRIOS BRASILEIROS E INTERNACIONAIS

FACTOR DE RIESGO DE DISLIPIDEMIA EN UNIVERSITARIOS BRASILEÑOS E INTERNACIONALES.

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ABSTRACT

Objective: to evaluate the risk factor dyslipidemia in the nursing diagnosis Risk of impaired cardiovascular function in university students from Lusophone countries. **Method:** this is a quantitative, descriptive, cross-sectional study with 334 university students. An interview, physical examination and fasting blood were performed. The Mann-Whitney U test was used, according to the behavior of the data, establishing a significance level of 0.05 for all analytical techniques. **Results:** there was an association with statistical significance of dyslipidemia with the age group of 18 to 24 years, yellow, white or brown skin color and marital status without a partner. The highest values of total cholesterol associated with personal history, obesity, hypertension and alcohol use were presented. High LDL parameters were statistically associated with obesity, hypertension and diabetes. **Conclusion:** it was possible to evaluate the risk factor dyslipidemia of the nursing diagnosis. Risk of impaired cardiovascular function in university students from Lusophone countries, which can be used to plan and implement actions aimed at health promotion and disease prevention in this group. **Descriptors:** Evaluation; Health Profile; Dyslipidemias; Nursing Diagnosis; Students; Nursing.

RESUMO

Objetivo: avaliar o fator de risco dislipidemia do diagnóstico de Enfermagem Risco de função cardiovascular prejudicada em estudantes universitários de países lusófonos. **Método:** trata-se de um estudo quantitativo, descritivo, transversal com 334 universitários. Realizaram-se, uma entrevista, exame físico e coleta de sangue em jejum. Empregou-se o teste U de Mann-Whitney, de acordo com o comportamento dos dados, estabelecendo-se, para todas as técnicas analíticas, o nível de significância de 0,05. **Resultados:** apresentou-se associação com significância estatística da dislipidemia com a faixa etária de 18 a 24 anos, a cor da pele amarela, branca ou parda e o estado civil sem companheiro. Apresentaram-se os valores mais elevados do colesterol total associação com o histórico pessoal, obesidade, hipertensão arterial e uso do álcool. Detalha-se que os parâmetros elevados de LDL tiveram associação estatística com a obesidade, hipertensão arterial e diabetes. **Conclusão:** possibilitou-se avaliar o fator de risco dislipidemia do diagnóstico de Enfermagem Risco de função cardiovascular prejudicada em estudantes universitários de países lusófonos, que poderá ser utilizado para planejamento e implementação de ações voltadas para a promoção da saúde e prevenção dos agravos neste grupo. **Descritores:** Avaliação; Perfil de Saúde; Dislipidemias; Diagnóstico de Enfermagem; Estudantes; Enfermagem.

RESUMEN

Objetivo: evaluar el factor de riesgo de dislipidemia en el diagnóstico de Enfermería Riesgo de deterioro de la función cardiovascular en estudiantes universitarios de países. **Método:** este es un estudio cuantitativo, descriptivo, transversal con 334 estudiantes universitarios. Se realizó una entrevista, examen físico y sangre en ayunas. Se utilizó la prueba U de Mann-Whitney, de acuerdo con el comportamiento de los datos, estableciendo un nivel de significancia de 0.05 para todas las técnicas analíticas. **Resultados:** hubo una asociación con significación estadística de dislipidemia con el grupo de edad de 18 a 24 años, color de piel amarillo, blanco o marrón y estado civil sin pareja. Se presentaron los valores más altos de colesterol total asociados con antecedentes personales, obesidad, hipertensión y consumo de alcohol. Los altos parámetros de LDL se asociaron estadísticamente con obesidad, hipertensión y diabetes. **Conclusión:** fue posible evaluar el factor de riesgo de dislipidemia del diagnóstico de Enfermería Riesgo de deterioro de la función cardiovascular en estudiantes universitarios de países lusófonos, que se puede utilizar para planificar e implementar acciones dirigidas a la promoción de la salud y la prevención de enfermedades en este grupo. **Descriptor:** Evaluación; Perfil de Salud; Dislipidemias; Diagnóstico de Enfermería; Estudiante; Enfermería.

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INTRODUCTION

It is necessary for nurses to work in an organized and systematized manner, based on the Nursing process, which includes some steps, including the Nursing diagnosis. The 2015-2017 version of NANDA-I included the Nursing diagnosis of Risk of impaired cardiovascular function, which originated as a result of the demands of Primary Health Care, as nurses treat many people with chronic diseases, with various associated pathologies, in use / dependent on various medications.

It is explained that, in this public, the problems arising from each disease, which, in most cases, are cardiovascular events, are not perceived and, consequently, the care is not performed either.¹ It is noted that among the relevant risk factors for the above-mentioned nursing diagnosis is dyslipidemia, the definition of which is the presence of at least one alteration of the lipid profile: high serum concentration of low-density lipoprotein (LDL-C), triglyceride (TG) and / or reduced high density lipoprotein (HDL-C).²

It is confirmed by evidence from several studies that measurements of total cholesterol (TC) and LDL-C can be used to assess cardiovascular risk and constitute the main therapeutic target for the prevention of cardiovascular disease (CVD). To properly assess this risk, HDL-C analysis is also essential.³

Epidemiological studies have confirmed that, in the absence of risk factors, CVD would be a relatively rare cause of death.⁴ Therefore, primary prevention is constituted by questioning, detecting and managing risk factors as a relevant tool to prevent or minimize the progression of CVD and its complications in an effective and less harmful way.⁵

Considering the need for early detection of dyslipidemia for the prevention of cardiovascular diseases, the relevance of evaluating university students is considered, as they are mostly young adults who, in search of the need to adapt to the new rhythm (moving from city or country, living alone or sharing a home with other family members or colleagues, reconciling work and study, having a good school performance, among others) may be more likely to adopt an unhealthy lifestyle (sedentary lifestyle). and poor eating habits), weight gain and increased abdominal fat, which predispose to this condition. This will enable dyslipidemia screening, effective intervention, proper management of dyslipidemia and prevention of possible health damage in this population.

OBJECTIVE

- To evaluate the risk factor dyslipidemia in nursing diagnosis Risk of impaired cardiovascular

function in university students from lusophone countries.

METHOD

This is a descriptive cross-sectional study with a quantitative approach. The data collection site was chosen by a federal public university whose campuses are located in the municipalities of Acarape and Redenção, in the state of Ceará-CE, Northeast Brazil, which include students from Brazil and internationally (Angola, Mozambique, Cape Verde, Guinea-Bissau, Sao Tome and Principe, East Timor).

The study population consisted of 2,496 male and female college students, aged 18 and over, born in the above-mentioned countries, enrolled and regularly attending the face-to-face courses contemplated in the University's Graduate Program.

The sample consisted of 334 students (Brazil: 190; Angola: 30; Cape Verde: 11; Guinea Bissau: 63; Mozambique: 11; Sao Tome and Principe: 7 and East Timor: 22) calculated using the formula for finite sample determination. The following were considered for the calculation: $N = 2,496$; $p = 0.25$; $q = 0.75$; $e = 0.05$ (95% confidence); $z = 1.96$.

Data was collected for convenience, from January to July 2017, using primary source. After orientation, clarification and acceptance to participate in the research, the participants were asked to sign the Free and Informed Consent Term (FICT). Subsequently, the interview was conducted with the application of a form containing open and structured questions regarding patient identification, relating demographic and social data; information on health conditions and presence of risk factors for the onset of dyslipidemia.

Blood samples were collected after a night fasting of eight to 12 hours at the institution's health clinic, by venipuncture, using a vacuum system with a volume of 20 ml, collected in two vacutainer tubes. After collecting the biological material, students were offered a snack for breakfast.

All biological material was kept on ice and protected from light until plasma and serum were obtained. Samples were stored after lipid profile analysis at 80 ° C until HDL size and functionality analyzes were performed.

All dosages were performed at the Clinical Biochemistry Laboratory of the Department of Clinical and Toxicological Analyzes of the Faculty of Pharmacy of the Federal University of Ceará.

The following parameters were adopted for lipid evaluation: isolated hypercholesterolemia - when there is isolated elevation of LDL-C ($LDL-c \geq 160$ mg / dL); isolated hypertriglyceridemia - isolated increase in triglycerides ($TG \geq 150$ mg /

dL); mixed hyperlipidemia - when there is elevation of LDL-C ($LDL-c \geq 160$ mg / dL) and triglycerides ($TG \geq 150$ mg / dL); Low HDL-c - isolated reduction of HDL-c (men <40 mg / dL and women <50 mg / dL) or associated with increased LDL-c or TG⁽⁶⁾.

The results of the exams were made available by e-mail to the students and those with altered lipid values were instructed to schedule an appointment with the institution's doctor.

Data collected in a spreadsheet of the Excel for Windows® 2010 program was tabulated using the Epi Info version 7.1.2.0 for statistical analysis.

For the analysis of association between categorical variables of interest and dyslipidemia, the Mann-Whitney U test was used, according to the data behavior, establishing a significance level for all analytical techniques. 0.05.

The study met the formal requirements contained in national and international regulatory standards for research involving human subjects.

RESULTS

Regarding the sociodemographic profile of the students, 56.9% were Brazilian. However, it should be noted that there was a significant representation of international students (43.1%)

from various countries of the African continent, as well as from East Timor.

Taking into account the nationality, it is described that, in the Brazilian students, the age group of 18 to 24 years old prevailed (78.4%) (average age: 22.3 years old), the female gender (60.5%), brown color (71.0%), single marital status (90.5%), exclusive student occupation (74.8%), average individual income of R \$ 533.00 and residence with friends (46.8%).

Similarly to Brazilians, it is inferred that, in the international ones, the age group of 18 to 24 years old (72.2%) (average age: 23.1 years old) also prevailed, the single marital status (a) (97.9%), exclusive student occupation (82.0%), average individual income of R \$ 706.60 and residence with friends (86.1%); however, in the latter, male gender (59.7%) and black color (82.6%) prevailed.

Table 1 explains the association of dyslipidemia with the sociodemographic conditions of university students from Lusophone countries.

Table 1. Dyslipidemia associated with sociodemographic conditions of university students from Lusophone countries according to Brazilian (n = 190) and international (n = 144) nationality.

Nationality	Brazilian					International				
	Yes		No		Value p ¹	Yes		No		Value p ¹
Dyslipidemia Sociodemographic Conditions	n	%	n	%		n	%	n	%	
Age group										
Equal/superior to 25 years	18	26.9	19	15.4	0.058	10	66.7	32	24.8	0.001
Between 18 and 24 years	49	73.1	104	84.6	0.058	05	33.3	97	75.2	0.001
Sex										
Female	40	59.7	75	61.0	0.864	07	46.7	51	39.5	0.594
Male	27	40.3	48	39.0	0.864	08	53.3	78	60.5	0.594
Skin color										
Yellow/White/Brown	61	91.0	104	84.6	0.206	06	40.0	19	14.7	0.014
Black	06	9.0	19	15.4	0.206	09	60.0	110	85.3	0.014
Marital status										
With partner	05	7.5	09	7.3	0.971	02	13.3	01	0.8	0.001
Without partner	62	92.5	114	92.7	0.971	13	86.7	128	99.2	0.001
Lives with										
Friends or alone	39	58.2	58	47.2	0.145	13	86.7	120	93.0	0.380
Relatives or spouse	28	41.8	65	52.8	0.145	02	13.3	09	7.0	0.380
Occupation										
Scholarship holder/Work	19	28.4	29	23.6	0.469	05	33.3	21	16.3	0.104
Exclusive student	48	71.6	94	76.4	0.469	10	66.7	108	83.7	0.104

Note: ¹ Pearson's chi-square test.

It is observed that dyslipidemia was statistically significant associated with the age group 18-24 years (p: 0.001), yellow, white or brown skin color (p: 0.014) and marital status without a partner (a) (p: 0.001).

Table 2 shows the comparison of biochemical parameters associated with cardiovascular risk factors in university students from Lusophone countries.

Table 2. Comparison of biochemical parameters associated with cardiovascular risk factors in university students from Lusophone countries. Redenção (CE), Brazil, 2017.

Variable	Group	Colesterol	HDL	LDL	Trig
Family history	Yes	162.9 [33.0] - 161.0	48.3 [13.9] - 46.0	97.1 [28.7] - 95.9	86.7 [55.4] - 70.5
	No	158.2 [30.2] - 157.5	48.9 [14.0] - 46.5	95.3 [25.3] - 99.9	69.3 [31.1] - 59.0
	<i>p-value</i>	0.428	0.736	0.928	0.014
Personal history	Yes	174.7 [43.2] - 175.0	49.7 [16.0] - 50.0	99.0 [31.5] - 91.4	129.3 [77.5] - 114.0
	No	160.6 [30.9] - 159.0	48.3 [13.7] - 45.0	96.5 [27.7] - 97.0	78.4 [45.9] - 66.0
	<i>p-value</i>	0.041	0.710	0.678	0.000
Smoking	Yes	172.3 [30.6] - 170.5	47.4 [15.2] - 45.5	102.7 [25.1] - 103.5	110.5 [65.0] - 95.0
	No	161.4 [32.6] - 160.0	48.5 [13.9] - 46.0	96.4 [28.2] - 96.7	81.9 [50.9] - 67.0
	<i>p-value</i>	0.137	0.661	0.325	0.006
Sedentary lifestyle	Yes	162.9 [34.7] - 157.0	47.3 [13.8] - 44.0	98.2 [29.0] - 96.6	86.5 [47.9] - 71.0
	No	161.2 [30.6] - 164.0	49.4 [14.0] - 47.0	95.6 [27.3] - 97.7	80.9 [55.1] - 65.0
	<i>p-value</i>	0.881	0.143	0.653	0.063
Obesity	Yes	195.1 [37.6] - 198.0	46.1 [12.9] - 47.0	115.7 [30.4] - 115.2	166.6[100.1] -139.0
	No	159.8 [31.0] - 158.5	48.6 [14.0] - 46.0	95.6 [27.5] - 95.6	78.1 [42.5] - 67.0
	<i>p-value</i>	0.000	0.551	0.004	0.000
Hypertension	Yes	182.6 [38.3] - 179.0	45.6 [12.3] - 41.0	113.9 [25.7] - 114.0	115.2 [63.4] - 91.0
	No	161.0 [31.9] - 159.0	48.6 [14.0] - 46.0	96.0 [27.9] - 96.2	81.9 [51.1] - 67.0
	<i>p-value</i>	0.027	0.384	0.016	0.010
Diabetes	Yes	240.0 [00.0] - 240.0	38.0 [00.0] - 38.0	144.0 [00.0] - 101.4	290.0 [00.0] - 290.0
	No	161.7 [32.2] - 160.0	48.5 [13.9] - 46.0	96.6 [28.0] - 91.8	82.8 [50.9] - 68.0
	<i>p-value</i>	0.093	0.342	0.031	0.096
Use of alcohol	Yes	168.6 [31.9] - 167.0	47.1 [12.9] - 45.0	101.1 [27.3] - 161.0	101.5 [68.4] - 84.0
	No	158.2 [32.2] - 152.0	49.2 [14.5] - 46.0	94.3 [28.2] - 157.5	73.1 [36.3] - 63.0
	<i>p-value</i>	0.002	0.266	0.428	0.000

Note: Data presented as Mean [Standard Deviation] - Median; Statistics - Mann-Whitney U Test.

Table 2 shows a statistically significant association between higher total cholesterol values and personal history (p: 0.041), obesity (p: 0.000), hypertension (p: 0.027) and alcohol use (p: 0.002). . In addition, HDL was not statistically significantly associated with any cardiovascular risk factor, and elevated LDL parameters were statistically associated with obesity (p: 0.004), high blood pressure (p: 0.016), and diabetes (p: 0.031).

The highest triglyceride rates were associated with family history (p: 0.014), personal history (p: 0.000), smoking (p: 0.006), obesity (p: 0.000), hypertension (p: 0.010) and alcohol use (p: 0.000).

DISCUSSION

It is emphasized in this research that dyslipidemia was an important cardiovascular risk factor, as it was identified in 35.3% of Brazilian students and 10.4% of international students.

In a study conducted with Chilean university students, 35.0% showed total cholesterol of 200 mg / dl; 51.4% had low HDL-c values and 44.1% had elevated serum LDL-c levels.⁷ It was found in a

survey conducted at a Arabian Gulf University with 166 students, whose average age was 20.49 years, that 26.5% of these had primary hypercholesterolemia.⁸ In Brazil, in a study with 702 university students, 23.0% had high triglyceride values; 9.7% total cholesterol; 5.9% of LDL-c and 12.0% showed decreased HDL-c values.⁹

It is noticed that, in the same public, there may be variations in the lipid profile. Can these different outcomes be associated with students' different lifestyles in their home countries, taking into account harmful health habits.

Regarding age, dyslipidemia was associated with the age group of 18 to 24 years (p: 0.010) in students in general. It was found, in a study conducted with 550 Brazilian university students, that the age group from 18 to 25 years presented the most alterations in the lipid profile, with a positive relation for increased triglycerides.¹⁰ It was revealed in a study conducted at a university in Brazil, with 149 health students, aged between 18 and 35 years, that only 20.14% had desirable levels for lipid profile.¹¹

It was identified, in 2016, in an investigation by telephone survey in the capitals of the 26 Brazilian

<https://periodicos.ufpe.br/revistas/revistaenfermagem/index>

states and the Federal District, on surveillance of risk factors and protection for chronic diseases, that the frequency of previous medical diagnosis of dyslipidemia reported by adults, aged 18 years and over, ranged from 17.7% in Porto Velho to 28.7% in Aracaju.¹²

In this context, we warn that the data revealed in this study are worrying, since the prevalence of dyslipidemia in Brazilian students (35.4%) exceeded the highest values reported in the last population-based survey in this country (28.7%).¹²

It is known that the genetic factor may influence changes in lipid profile, however, most of the times, these changes are more associated with inadequate lifestyle⁹ (wrong diet, physical inactivity, smoking, alcohol use), which may predispose to obesity, high blood pressure, diabetes mellitus and other cardiovascular diseases.

It is pointed out that young university adults have multiple predictors for the incidence of cardiovascular diseases, such as the circulatory system, and for mortality in old age. In this way, the surveillance of this population becomes indispensable⁸.

It is noteworthy that healthy eating associated with physical exercise reduces changes in lipoprotein profile and, consequently, have beneficial repercussions on dyslipidemias.¹¹ In relation to the lipid plasma levels, physical exercise increases both HDL-c levels and circulating LDL-k kinetics. In addition, the period in which LDL-c remains in reduced form is prolonged. As for triglycerides, it is shown that exercise consistently reduces the plasma concentration of these triglycerides.⁶

In view of the above, early prevention, detection and treatment of dyslipidemia in young adults is of paramount importance, as the high permanence of plasma lipid levels is an important risk for the development of cardiovascular events.

It is imperative, considering that the university is an environment in which students stay during a good period of the day, strengthening actions aimed at health promotion focusing on dyslipidemia.

Therefore, in order to eliminate the risk factors for dyslipidemia (physical inactivity, inadequate diet, alcohol consumption and smoking), it is necessary that the educational institution is a favorable place for healthy habits, including: provision of balanced diet aimed at for this phase of life, respecting the habits of the different Lusophone countries; providing adequate space for physical activities, with financial stimulus for the training of athletes in different sports and educational campaigns aimed at cessation of alcohol and tobacco use.

In this context, nurses and other health professionals could play an important role,

especially in health promotion aimed at sensitizing and encouraging students to change harmful behaviors, as well as in monitoring students with dyslipidemia.

CONCLUSION

This study aimed to evaluate the risk factor dyslipidemia in the nursing diagnosis of risk of impaired cardiovascular function in university students from Lusophone countries, making it possible to identify, according to sociodemographic conditions, in which groups of students the dyslipidemia prevailed.

It made a significant contribution to the academic population and health professionals, as dyslipidemia was screened in college students. Therefore, data were provided for the health team to carry out the planning and implementation of actions that reduce this problem and, consequently, minimize the risk of cardiovascular disease and improve the quality of life of students.

This research was limited to the recruitment of participants, because the enrollment of university students was for convenience, given the difficulty of obtaining a minimum sample by country.

It is hoped that this research will favor the expansion of knowledge to health professionals and university students, as well as encourage, in the latter, changes in behavior that are harmful to health. It is also estimated that it may help other studies in this perspective, encouraging further investigations and the elaboration of intervention strategies that favor the improvement of the quality of care of this group.

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