

# Sociodemographic determinants of university students' lifestyles

## Determinantes sociodemográficos del estilo de vida en universitarios

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### ABSTRACT

**Objective** It has been observed during recent decades that a large percentage of the population has an inadequate lifestyle and that there is a need for identifying factors determining such behavior pattern. This study was thus aimed at determining the association between lifestyle and sociodemographic variables of freshmen attending a state university in southern Brazil.

**Methods** The sample consisted of 716 students (59.6 % female). The Fantastic questionnaire was used for evaluating the students' lifestyles; their lifestyle was classified as being suitable or inadequate. The sociodemographic variables of interest were gender, age group (<20 and ≥20 years), paid work (yes or no), maternal education (≤4 years of study, 5-8 years and ≥9 years), study shift (daytime or night-time) and marital status (single and married). Binary logistic regression was used for determining associations between lifestyle and sociodemographic characteristics ( $p < 0.05$  being significant).

**Results** Inadequate lifestyle prevalence was 5.3 %. Adjusted analysis results indicated that students over 20 years-old (OR=2.87: 1.37-6.03 95 %CI) whose mothers' formal education had lasted less than nine years (OR=2.23: 1.29-3.88 95 % CI) had a higher risk of having an inadequate lifestyle.

**Conclusion** These findings may be useful for developing university healthcare promotion programs, paying special attention to older freshmen whose mothers have had less formal education.

**Key Words:** Life-style, student, cross-sectional study, educational status, risk factor, health pattern (source: MeSH, NLM).

## RESUMEN

**Objetivo** En las últimas décadas se ha observado que gran parte de la población presenta un estilo de vida inadecuado, destacando la necesidad de identificar determinantes que pueden influenciar en este patrón de comportamiento. Frente a esta situación, el objetivo de este estudio fue analizar la asociación entre el estilo de vida y los determinantes sociodemográficos de individuos recién matriculados en una universidad pública del sur de Brasil.

**Métodos** La muestra fue conformada por 716 universitarios (56,6 % del sexo femenino). Para la evaluación del estilo de vida se utilizó el "Cuestionario Fantástico". El estilo de vida de los universitarios se clasificó como adecuado e inadecuado. Los determinantes sociodemográficos fueron: sexo (masculino y femenino), rango de edad (<20 y ≥20 años), trabajo remunerado (sí y no), escolaridad de la madre (≤4 años de estudio, 5-8 años y ≥9 años), turno de estudio (diurno y nocturno) y estado civil (soltero y casado). Se utilizó regresión logística para examinar las asociaciones entre el estilo de vida y los aspectos sociodemográficos, considerando  $p < 0,05$ .

**Resultados** La prevalencia del estilo de vida inadecuado fue de 5,3 %. Los resultados en el análisis ajustado demostraron que los universitarios mayores de 20 años (OR=2,87; IC95 %:1,37-6,03) y con baja escolaridad materna (de 9 años) (OR=2,23; IC95 %:1,29-3,88) presentaron un riesgo mayor para adquirir un estilo de vida inadecuado.

**Conclusiones** Estos resultados pueden ser de utilidad para el desarrollo de programas de promoción de la salud en la universidad, destacando de manera especial a los recién matriculados (universitarios mayores de edad) y con baja escolaridad materna.

**Palabras Clave:** Estilo de vida, conducta de salud, escolaridad, estudios transversales, factores de riesgo (*fuentes: DECS, BIREME*).

Lifestyle is characterized by easily identified behavior patterns, but can also have a profound effect on people's health (1). The more people balance their lifestyle indicators, engaging regularly in physical activity and having suitable nutrition, the healthier they will be. However, other lifestyle elements are also important for ensuring a good quality of life (QOL), such as avoiding smoking, having a good relationship with family and friends, avoiding excessive alcohol consumption, indulging in safe sex, stress control and having an optimistic and positive outlook on life (2).

Although some evidence has shown that adopting and maintaining a healthy lifestyle can improve health, major international institutions have identified most people having difficulty in adopting a healthy lifestyle (3,4). The World Health Organization has estimated that eight of the 10 risk

factors leading to most people's deaths worldwide are linked to lifestyle, representing 49.9 % of all deaths (5).

Several lifestyle indicators determine people's health, ranging from social to economic aspects, including environmental factors, personal attitudes or individual behavior, genetic and physiological characteristics and opportunities (2). Demographic and socioeconomic characteristics should be investigated as they can lead to identifying the population subgroups at the greatest risk of engaging in unsuitable behavior. Healthcare promotion action based on such identification may be aimed at encouraging healthy habits and lifestyle (6).

University students may be considered a group which is vulnerable to behavioral changes, considering that going to a university involves new friendships which will be reflected in the attitudes that these young people will adopt in their everyday lives (7). Some studies have reported that attending university negatively influences students' lifestyles because this is when many young people first come into contact with legal and illegal drugs, unhealthy food, a sedentary lifestyle and begin to experience relationship problems with family members (6-8). Identifying the population subgroups which are most vulnerable to an unsuitable/inadequate lifestyle can be the first step towards university healthcare intervention.

This study was aimed at analyzing the association between lifestyle and sociodemographic variables of freshmen attending a state university in southern Brazil.

## METHOD

### Population and sample

This study was based on the database arising from a research project entitled Assessment of health-related physical fitness of students attending the Federal University of Santa Catarina, UFSC. The study intervention protocols were approved by the UFSC Ethics Committee concerning research with human beings (96/2007).

The study population consisted of 2,290 freshmen entering a public university in Florianópolis in southern Brazil during the first half of 2008. The following parameters were used for calculating the sample size: 95 % confidence level (95 % CI), 30 % estimated outcome

prevalence and 3.0 maximum error. It was estimated that 708 students should be included, after an additional 10 % regarding eventual loss had been allowed for.

A stratified sample was used which was proportional to the university department and study shift (day and night). Group clusters were used regarding each department in which all students present in a classroom on the assessment day participated in the data collection; there was no refusal to sign the informed consent form or answer the questionnaire.

#### Instruments and procedure

The Canadian Association of Physiology's Fantastic Lifestyle self-administered questionnaire (2) was used for determining lifestyle; it had already been translated into Portuguese and validated for young Brazilian adults (9). The instrument consisted of 25 indicators divided into nine areas: family and friends, physical activity, nutrition, tobacco and drug use, alcohol use, sleep, seat belt use, safe sex and stress, behavior, introspection and work. The questions were arranged in Likert scale form; 23 items had five response alternatives (almost never, rarely, sometimes, quite frequently, almost always) and two items were restricted to almost never and almost always.

Overall lifestyle was represented by five categories according to the instrument's classification criteria. Subjects categorized as excellent, very good and good were considered to have a suitable lifestyle in the present study, whilst those categorized as regular and needs improvement had an inadequate lifestyle.

The sociodemographic variables analyzed were gender, age group (<20 and  $\geq 20$  years), paid work (yes or no), maternal education ( $\leq 4$  years of study, 5-8 years and  $\geq 9$  years), study shift (day and night) and marital status (single and married).

#### Statistical treatment

Descriptive statistics with absolute and relative frequency were used for characterizing the sample. A difference between two proportions test was used and binary logistic regression (crude and adjusted) for determining associations between lifestyle (dependent variable) and sociodemographic characteristics (independent variables) by estimating odds ratios and 95 % CI. All sociodemographic variables having  $p \leq 0.25$  association with

lifestyle in a chi-square test were used in the crude and adjusted regression models. The Wald test was used for ascertaining statistical significance in adjusted analysis, crude analysis variables being increasingly introduced, one by one. Significance level was set at 5 % and SPSS software (version 17.0) was used for analysis.

## RESULTS

The study sample consisted of 716 freshmen. Table 1 shows the sample distribution according to sociodemographic variables. Most students surveyed were female, aged younger than 20 years-old, had no paid work, their mothers' education had lasted longer than nine years, the studied during the day-time and were unmarried.

Table 2 shows the sample distribution in relation to the lifestyle domains. The inadequate lifestyle prevalence amongst students was 5.3% and around 20 % of the sample was seen to be inadequate regarding the family and friends and introspection domains.

Over two-thirds of the sample proved inadequate in terms of engaging in physical activity and more than one third of the sample was inadequate regarding the nutrition domain.

**Table 1.** Sample distribution according to sociodemographic variables for university students in southern Brazil

Sociodemographic variables		n	%
Gender	Female	289	40.4
	Male	427	59.6
Age group	Female	455	63.5
	Male	261	36.5
Paid work	No	538	75.1
	Yes	178	24.9
Maternal education	<4 years	52	7.3
	5-8 years	77	10.7
	≥9 years	587	82.0
Study shift	Day	513	71.6
	Night	203	28.4
Marital status	Single	682	95.3
	Married	34	4.7

Less than 10 % were inadequate concerning the smoking and drugs domain and 15.5 % alcohol. More than half the students were inadequate regarding the behavior domain. The lowest percentages regarding inadequate students concerned sleep, safety belt use, safe sex, stress (8.4 %) and work domains (8.2 %).

Only sociodemographic variables having  $\leq 0.25$  p value in a chi-square test between lifestyle and sociodemographic variables were included in the logistic regression analysis (data not shown).

Table 3 shows the association between lifestyle (overall and by domain) and sociodemographic variables. The results of the adjusted analysis for all variables included in the crude analysis indicated that students older than 20 years and whose mothers' education had lasted less than nine years were more likely to have an inadequate/unsuitable lifestyle. The group most likely to have an inadequate lifestyle in the family and friends domain consisted of males whose mothers' education had lasted less than nine years. Being male was a protective factor regarding physical inactivity in the physical activity domain. Regarding nutrition, working students were more likely to have inadequate food consumption. Being older than or equal to 20 years old was a risk factor for smoking and taking illicit drugs. The groups most likely to be inadequate regarding alcohol were male freshmen who were aged greater than or equal to 20 years old.

**Table 2.** Sample distribution regarding the lifestyle domains of university students in southern Brazil

Lifestyle domains	Adequate	Inadequate	p-value*
	% (n)	% (n)	
Overall	94.7 (678)	5.3 (38)	<0.001
Family and friends	81.4 (583)	18.6 (133)	<0.001
Physical activity	31.7 (227)	68.3 (489)	<0.001
Nutrition	62.3 (446)	37.7 (270)	<0.001
Smoking and drugs	90.8 (650)	9.2 (66)	<0.001
Alcohol use	84.5 (605)	15.5 (111)	<0.001
Sleep, use of seat belt, stress and safe sex	91.6 (656)	8.4 (60)	<0.001
Behavior	48.9 (350)	51.1 (366)	0.607
Introspection	77.0 (551)	23.0 (165)	<0.001
Work	91.8 (657)	8.2 (5.9)	<0.001

\* Comparison between two proportions test

Being married was a protective factor for an inadequate lifestyle in the behavior domain and being male was a protective factor for the introspection domain. No significant associations with sociodemographic variables in adjusted analysis were observed regarding the sleep, use of seat belts, safe sex, stress and work domains.

**Table 3.** Association between sociodemographic variables and inadequate lifestyle according to the lifestyle domains for university students in southern Brazil

Lifestyle	Sociodemographic variables		Crude analysis OR (95 %CI)	Adjusted analysis† OR (95 %CI)
Overall	Gender	Female	1	1
		Male	1.71 (0.83-3.50)	1.73 (0.83-3.59)
	Age group	< 20 years	1	1
		≥ 20 years	3.19 (1.62-6.28)*	2.87 (1.37-6.03)*
	Paid work	No	1	1
		Yes	1.62 (0.81-3.23)	0.90 (0.41-1.98)
	Maternal education	< 4 years	2.07 (1.09-3.93)*	2.13 (1.12-4.06)*
		5-8 years	2.05 (1.19-3.51)*	2.23 (1.29-3.88)*
≥ 9 years		1	1	
Study shift	Day	1	1	
	Night	1.51 (0.76-2.98)	1.13 (0.54-2.35)	
Domain 1 Family and friends	Gender	Female	1	1
		Male	1.66 (1.11-2.49)*	1.59 (1.06-2.40)*
	Maternal education	< 4 years	2.07 (1.09-3.93)*	2.13 (1.12-4.06)*
		5-8 years	2.05 (1.19-3.51)*	2.23 (1.29-3.88)*
		≥ 9 years	1	1
Marital status	Unmarried	1	1	
	Married	0.41 (0.12-1.37)	0.38 (0.11-1.31)	
Domain 2 Physical activity	Gender	Female	1	1
		Male	0.45 (0.32-0.63)*	0.46 (0.33-0.65)*
	Age group	< 20 years	1	1
		≥ 20 years	0.80 (0.58-1.10)	2.04 (0.81-5.18)
Marital status	Unmarried	1	1	
	Married	2.24 (0.91-5.48)	0.74 (0.53-1.03)	
Domain 3 Nutrition	Gender	Female	1	1
		Male	1.35 (0.99-1.84)	1.35 (0.99-1.84)
	Paid work	No	1	1
Yes		1.54 (1.09-2.18)*	1.54 (1.09-2.18)*	
Domain 4 Cigarettes and drugs	Gender	Female	1	1
		Male	1.62 (0.94-2.81)	1.57 (0.90-2.74)
	Age group	< 20 years	1	1
		≥ 20 years	2.12 (1.27-3.53)*	2.26 (1.30-3.95)*
	Paid work	No	1	1
		Yes	1.47 (0.85-2.54)	1.23 (0.67-2.25)
	Maternal education	< 4 years	0.40 (0.10-1.70)	0.29 (0.06-1.26)
5-8 years		1.68 (0.84-3.38)	1.41 (0.68-2.93)	
≥ 9 years		1	1	
Marital status	Unmarried	1	1	
	Married	0.29 (0.04-2.14)	0.19 (0.03-1.48)	
Domain 5 Alcohol	Gender	Female	1	1
		Male	4.88 (2.81-8.49)*	4.63 (2.64-8.10)*
	Age group	< 20 years	1	1
		≥ 20 years	1.82 (1.21-2.74)*	1.99 (1.27-3.14)*
	Paid work	No	1	1
		Yes	1.34 (0.86-2.10)	1.11 (0.66-1.85)
	Study shift	Day	1	1
Night		1.39 (0.90-2.14)	1.10 (0.69-1.75)	
Marital status	Unmarried	1	1	
	Married	0.16 (0.02-1.16)	0.16 (0.02-1.26)	

Lifestyle	Sociodemographic variables	Crude analysis OR (95 %CI)	Adjusted analysis‡ OR (95 %CI)	
Domain 6 Sleep, use of seat belt, stress and safe sex	Age group	< 20 years	1	1
		≥ 20 years	1.71 (1.01-2.91)*	1.56 (0.90-2.73)
	Maternal education	< 4 years	1.00 (0.35-2.91)	0.83 (0.28-2.45)
		5-8 years	2.01 (0.99-4.07)	1.68 (0.81-3.51)
		≥ 9 years	1	1
	Study shift	Day	1	1
Night		1.40 (0.80-2.45)	1.27 (0.71-2.25)	
Domain 7 Behavior	Gender	Female	1	1
		Male	0.79 (0.58-1.06)	0.74 (0.55-1.01)
	Marital status	Unmarried	1	1
		Married	0.44 (0.21-0.92)*	0.40 (0.18-0.83)*
Domain 8 Introspection	Gender	Female	1	1
		Male	0.67 (0.47-0.95)*	0.66 (0.46-0.93)*
	Maternal education	< 4 years	1.19 (0.62-2.31)	1.15 (0.59-2.24)
		5-8 years	1.62 (0.97-2.73)	1.56 (0.92-2.64)
		≥ 9 years	1	1
	Study shift	Day	1	1
Night		1.27 (0.87-1.84)	1.27 (0.86-1.87)	
Domain 9 Work	Age group	< 20 years	1	1
		≥ 20 years	2.06 (1.20-3.51)*	1.72 (0.97-3.05)
	Maternal education	< 4 years	2.36 (1.04-5.34)*	1.82 (0.78-4.24)
		5-8 years	1.71 (0.80-3.68)	1.31 (0.59-2.92)
		≥ 9 years	1	1
	Study shift	Day	1	1
Night		1.69 (0.98-2.94)	1.45 (0.82-2.57)	
Marital status	Unmarried	1	1	
	Married	2.01 (0.75-5.39)	1.39 (0.49-3.92)	

OR: odds ratio, 95 %CI: 95 % confidence interval, \*p<0.05 on the Wald test; † only sociodemographic variables having ≤0.25 p-value in the chi-square test participated in the regression analysis; ‡ analysis adjusted for variables in the crude analysis.

## DISCUSSION

Regarding lifestyle association with sociodemographic variables, the findings of this study showed a statistically significant association of a healthy lifestyle amongst younger than 20 year-old male freshmen whose mothers' education had lasted nine years or longer. On the other hand, 5.3% of students attending university had an inadequate/unsuitable lifestyle, characterized by greater withdrawal from family and friends, smoking and drugs and alcohol consumption. Maternal education lasting less than 9 years, being male and older than or equal to 20 years-old was a risk factor for these students (i.e. could negatively have affected their health).

Regarding the association between sociodemographic variables and family and friends domain, the groups most likely to have an inadequate lifestyle were male students whose mothers had studied less than nine years. The literature has highlighted gender differences regarding



satisfaction and relationship with family (10); a study involving a sample of Japanese men reported that they placed less importance on social and family relationships than women did (10). This may have been related to cultural aspects as women spend more time with family, taking care of household chores and children whilst men spent more time on activities outside their homes. Regarding maternal education, the literature has shown that children from mothers having a low educational level were more likely to have lower intelligence scores and an inadequate lifestyle (11). This was probably due to most individuals having a low educational level also having low income levels and being less likely to have a healthy lifestyle.

Males were more physically active than women regarding the physical activity domain; this finding agreed with other studies on university students (12). Silva and Petroski (13) studied university students in Brazil and reported that women being less physically active than men was probably associated with cultural factors, such as the greater amount of housework that women do and men having more free time for physical activity.

Regarding the nutrition domain, working students were more likely to have inadequate food consumption. Jung et al., (7) studied freshmen at a university in Canada and reported that healthy behavior, such as eating habits, tended to worsen over the academic years. This may have been due to students' increasing amount of tasks at university. This situation may have worsened if students also had to work beyond their studying time because they would have worried less about preparing healthy food, since processed fast food (most having high calorific value) is more accessible (14).

Regarding the smoking and illicit drugs domain, this study found that being older than 20 years was characterized as a risk factor for consuming these substances. Tiffany et al., (15) carried out a prospective study with freshmen in an American university and found that alcohol, tobacco and illicit drug consumption increased with increasing age and over the academic years. A cross-sectional study of 2,477 university students in Taiwan reported that 12.8 % of them started to smoke and 33.3 % became regular smokers after entering university (16). This highlights the need for urgent efforts to be made in universities to avoid students acquiring the habit of smoking tobacco or other substances since, according to the WHO

(5), smoking is the second risk factor for death worldwide (accounting for 5.1 million deaths per year).

Regarding alcohol, male freshmen aged greater than or equal to 20 years old were the group most likely to have inadequate behavior. Higher alcohol abuse amongst men was consistent with findings in the pertinent literature (17,18). A population-based study in the USA reported alcoholism and heavy alcohol consumption prevalence on a single occasion was greater among males (18). A survey in southern Brazil reported heavy (27.2 %) alcohol consumption prevalence for males and 3.8% for females (17). Regarding age, studies have shown that university students tended to consume more alcohol as age increased (6,15). This makes it clear that university awareness raising campaigns regarding alcohol abuse are needed, especially aimed at males and older students.

This study found that being married was a protective factor regarding an inadequate/unsuitable lifestyle in the behavior type domain where students' relationship with haste, anger and hostility was assessed. A cohort study in Italy involving 5,376 individuals found that the mortality risk was 25 % higher amongst single people and 42 % higher among people living alone compared to married couples and those living with partners (18). The relationship between marital status and health could have been related to a protective effect regarding improved state of health being induced by living in a couple thereby providing social and economic support (i.e. healthier lifestyle and better QOL) (18).

Being male was a protective factor for the introspection domain (optimism, disappointment, sadness and depression). The increased risk of depressive symptoms and introspection amongst women is well known in depression epidemiology (19,20); such increased risk could be related to socio-cultural issues associated with adverse experiences and psychological and physiological attributes associated with greater vulnerability to stressful events (20).

No significant associations with sociodemographic variables were observed in adjusted analysis regarding the work domain and sleep, use of seat belts, safe sex and stress domains. This may have been related to the sample's particular characteristics as most were freshmen aged younger than 20 years old, most of whom did not work and were single. As most of

them did not work and therefore did not have to reconcile study and work could have decreased their perception of stress.

Instruments using information supplied by individuals, such as the Fantastic questionnaire, are cheap, easy to apply and provide access to a large number of people. They do have limitations, such as not providing accurate assessment since they cover various aspects constituting lifestyle and individuals may not be accurate in their responses, thereby masking reports of inadequate/unsuitable behavior. This study's cross-sectional design may be considered another limitation since it did not establish a cause-effect relationships between independent and dependent variables.

The university students at greatest risk of having an inadequate lifestyle were thus male, aged 20 years-old or more and those whose mothers' education had not lasted so long. Being married was considered a protective factor for having a suitable lifestyle. These findings may be useful for developing university healthcare promotion programs aimed at the most vulnerable groups for having an inadequate/unsuitable lifestyle ♦

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