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original article

Health risk behaviors Project (COMPAC) in youth of the Santa Catarina State, Brazil: ethics and methodological aspects

Projeto COMPAC (comportamentos dos adolescentes catarinenses): aspectos metodológicos, operacionais e éticos

Kelly Samara da Silva[1]
Adair da Silva Lopes[1]
Luana Peter Hoefelmann[1]
Luciana Gatto de Azevedo Cabral[1]
Maria Fermínia Luchtemberg De Bem[1]
Mauro Virgilio Gomes de Barros[2]
Markus Vinicius Nahas[1]

Abstract – Several school-based epidemiological surveys have been conducted by researchers worldwide. The aim of this article is to describe the methodological aspects used in planning the COMPAC Project (Behavior of Adolescents from Santa Catarina state) carried out in 2001 and 2011. The project presents state-wide school-based epidemiological characteristics (panel study). The population included public high school students between the ages of 15 to 19 years old from Santa Catarina. The sample (n = 5,028 in 2001; n = 6,529 in 2011) was representative of the six geographic regions of the state and was done in two stages, selecting the following items: (1) schools stratified by size (large: 500 or more students; medium: 200-499, and small: fewer than 200); and (2) shifts (day and evening), randomly chosen considering the proportion of students per grade and shift. In 2001, 5,463 students took part in the study, but 380 were excluded for being outside the age range and 55 were removed because they filled out the questionnaire incorrectly. In 2011, 7,077 students participated, but 508 were excluded and 40 removed for the same reasons mentioned above. The students responded a questionnaire on lifestyle and health risk behavior. Both surveys found a greater proportion of girls, single individuals, living with their family and residing in urban areas. The 2001 survey revealed a higher proportion of 17 to 19 year-olds who worked, who were enrolled in the second year of high school, and studied in the evening when compared to the 2011 survey. The methodological tools utilized in this study will can support the development of research with high school adolescents.

Key words: Adolescent behavior; Epidemiology; Methodology; Questionnaires.

Resumo – *Diversos levantamentos epidemiológicos de base escolar têm sido realizados por pesquisadores do mundo inteiro. O objetivo deste artigo é descrever os aspectos metodológicos utilizados no planejamento do projeto COMPAC (Comportamento do Adolescente Catarinense), realizado nos anos de 2001 e 2011. O projeto apresenta característica epidemiológica de base escolar, com abrangência estadual. A população incluiu estudantes de 15-19 anos, do Ensino Médio, das escolas da rede pública estadual de Santa Catarina. A amostra (n= 5.028 em 2001; n= 6.529 em 2011) foi representativa das seis regiões geográficas do estado e realizada em dois estágios, selecionando-se: (1) escolas estratificadas por porte (grande: 500 ou mais alunos; médio: 200-499 e pequeno: menor que 200); e (2) turmas selecionadas aleatoriamente, considerando a proporção de alunos por série e turno. Em 2001, participaram 5.463 estudantes, desses, excluíram-se 380 por estarem fora da faixa etária e as perdas foram de 55, por preenchimento incorreto do questionário. Em 2011, participaram 7.077 alunos, sendo excluídos 508 e perdidos 40 questionários, pelas mesmas razões citadas. Os estudantes responderam um questionário sobre estilo de vida e comportamentos de risco à saúde. Nos dois inquéritos, foi encontrada maior proporção de moças, de jovens solteiros, que moravam com a família e residiam em áreas urbanas. Em 2001, houve maior proporção de jovens de 17-19 anos, que trabalhavam; que estavam matriculados na 2ª série do Ensino Médio e estudavam à noite, em comparação ao inquérito de 2011. Os recursos metodológicos utilizados nesse estudo poderão subsidiar o desenvolvimento de pesquisas com jovens escolares.*

Palavras-chave: *Comportamento do adolescente; Epidemiologia; Metodologia; Questionários.*

1 Universidade Federal de Santa Catarina. Programa de Pós-Graduação em Educação Física. Florianópolis, SC. Brasil.

2 Universidade de Pernambuco. Programa de Pós-Graduação em Educação Física. Recife. PE. Brasil

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INTRODUCTION

School-based epidemiological surveys with a focus on adolescent health have been carried out frequently by researchers worldwide[1-5]. This happens because the school became a space quite appropriate for monitoring studies; it is an institution that absorbs a large portion of the young population. For example, 83.3% of adolescents between the ages of 15 to 17 in Brazil attend school according to the latest population census[6]. And it has also played a central role in the promotion and intervention on physical activity and health[7-9].

Several health surveillance systems monitor risk behaviors in young people[5,10]. These initiatives are important for two reasons: (1) these behaviors tend to be established in childhood and contribute to the leading causes of morbidity among young people[11], (2) the monitoring of these aspects in young people has been of great interest to researchers and public administrators with two main focuses: its influence on the current and future health of individuals and society[12,13] and a concern with certain habits continuing throughout life that may also influence people's health in the future[14,15].

However, the following difficulties are still found in this type of study: a) in general, these surveys have focused eating habits, the practice of physical activity, and risk behaviors with little information on other aspects of lifestyle such as the level of stress and preventive behaviors, b) there are very few studies done with only young people and with samples representing a state or region in Brazil, c) there is limited information on the behavior of these indicators over time.

Most surveys done with Brazilian schoolchildren have a local coverage[3,16-18]. Because of this the COMPAC Project (Behavior of Adolescents from the state of Santa Catarina) can be considered a pioneering study in Brazil with statewide coverage that evaluated indicators of the lifestyle of high school students based on six risk factors recommended by the World Health Organization[19] (smoking, alcohol consumption, physical inactivity, poor nutrition, situations of violence, and unprotected sexual activity).

This study describes peculiarities of methodological aspects used in survey COMPAC, with information about its design, the instruments used, data collection and ethical aspects of the study. The description of the methodological characteristics that supported the COMPAC project can help in building other school-based epidemiological surveys; serve as a resource for readers interested in studies with young students, and as a reference base for all publications related to this project. Therefore, the purpose of this article is to describe the methods used in developing the COMPAC project in its two versions: 2001 and 2011.

METHODOLOGICAL PROCEDURES

Model of the study

The survey "Lifestyle and behaviors of risk of young people from Santa Catarina - COMPAC" held in 2001 and 2011 presents statewide and school-based epidemiological characteristic with a repeated cross-sectional delimitation. This delimitation presents as a conceptual model the carrying out of section studies collected at different time intervals in the same population or sample without necessarily repeating the remarks on the same subjects selected in the initial investigation[20].

Population and Sample

The adolescents who were enrolled in high school grades of the public schools of Santa Catarina state participated in the study. The target population consisted of students from 15 to 19 years old, studying during the day or evening periods, and residents in Santa Catarina in 2001 and 2011.

Calculation of the sample

In the first survey, data was used from the school census of 2000[21], which indicated a total of 205,543 youth enrolled in public high schools. At that time there were 26 Regional Education Boards distributed in six geographic regions of the state of Santa Catarina (South, North, Coast, Itajai Valley, Serrano Highlands, and West). In the second survey, the estimated population of youth enrolled in public high school was 205,572 distributed into 36 Regional Education Boards (GEREDs) according to data from the School Census of 2010[22].

The sampling plan and methodological procedures employed in 2001 were kept in the survey of 2011. The following statistical parameters were considered to calculate the sample size: unknown prevalence of the phenomenon, estimated at 50% (due to numerous variables being studied), thus taking on the maximum variance of the sample estimators. A confidence interval of 95% was adopted and a maximum error of two percentage points. These parameters yielded a minimum sample size of 2,373 students. Since the sample was by clusters for the design effect, this amount was multiplied by two (n = 4,746) and then another 25% was added for the possible cases of losses or refusals during the collection, obtaining a final sample size of 5,932 adolescents.

Cluster random sampling

This survey used the procedures of sampling by clusters, which consists of the union of groups of elements from the population and uses the selecting of some of these groups as a procedure for making up the sample. The six geographic regions and their GEREDs were considered as strata. The selection of the sample units was conducted in two stages: (1) schools

stratified by size (large: ≥ 500 students, medium: 200 to 499 students, and small: < 200 students) were drawn up as primary sampling units (PSU); (2) classes stratified by shift and grade were drawn up as secondary sampling unit (SSU).

The strata were formed by the intersection of geographic location with the GEREDs (26 in 2001 and 36 in 2011) to ensure the participation of schools from different localities. In order to keep the delimitation of 2001, the new GEREDs were grouped (n = 25) in accordance with the division of the state's micro-regions.

The calculation of the number of schools needed in each stratum was obtained by applying the proportionality criterion. In 2001, 216 schools were selected by systematic sampling, but five refused, so that left a total of 211 schools of the 598 existing ones. In 2011 a total of 90 schools were selected from the 725 existing ones, with no refusals. In the second survey, in order to reduce the variability of the number of classes, the small and medium size schools were grouped according to the allocation of the corresponding GEREDs. After this process, 76 PSU were considered.

An average of 25 students per class was estimated in 2001 for the amount of classes needed. Considering that this number of students per class did not reach the sample necessary, an average of 17 students was considered for the survey in 2011. In order to achieve a total of 5,932 students, 240 classes were selected randomly from the 6,094 existing classes (n = a.b → 5,932 = 25b→ b = 237 classes) in 2001 and 344 classes from the 6,720 existing classes (n = a.b → 5,932 = 17b→ b = 348 classes) in 2011. After that a random drawing was done of the classes considering the proportionality of the shift and the grade based on the 2001 survey, and in 2011 the procedure of clusters of equal size was adopted for a number of five classes in each PSU (344 classes / 76 PSU = 5 classes), while maintaining an equivalent distribution in the draw of the grades during the day shift (n= 3 classes), and evening (n= 2 classes).

At this stage the probability was calculated considering the total number of existing classes in the schools selected in the first (240 classes selected from the 2,223 existing classes in the schools selected) and second survey (344 classes selected from the 1,171 classes computed in the schools selected). With this the probabilities of participation in the sample were obtained in order to calculate the sample weight and correction of the unbalance introduced with the sampling plan adopted.

Instrument for collecting data

In 2001 the questionnaire COMPAC (Behavior of Adolescents from Santa Catarina state) was developed in order to obtain information on the lifestyle and health risk behaviors of young people from Santa Catarina, based on other international questionnaires, reaching a total of 81 questions.

A pilot study was conducted in order to evaluate the psychometric characteristics of the questionnaire. For this, the aspects considered were of reproducibility, objectivity, and face & content validity were performed by

three experts. According to the results, the experts consulted gave favorable opinions regarding the face & content validity of the questionnaire. The length of time for applying the questionnaire was of 30 to 40 minutes and the levels of R per thematic unit ranged from 0.64 to 0.99.

Some changes were conducted in the second survey in order to include and/or exclude issues that researchers deemed relevant to the current moment. These questions were taken from the *Global School-based Student Health Survey*. The final version of the questionnaire contains 49 questions organized into sections: personal information; physical activity and sedentary behaviors; perception of the school environment and of Physical Education; eating habits and weight control; alcohol and tobacco consumption, perception of health, and preventive behavior. The questionnaire was restructured in 2011 to allow for the tabulation of data using optical reading, and it was decided to replace the instruction sheet for an instruction manual for applying the questionnaire.

Because of these changes, the reproducibility of the questionnaire was tested by adopting a sample size large enough (n= 107 students from a public school in Florianopolis) to obtain a Kappa index equal to or greater than 0.27 with a type I error of 5% and type II of 20%. The test-retest procedure was done by a single evaluator with an interval of two weeks between applications. The levels of R per thematic unit ranged from 0.51 to 0.96.

Data collection procedures

Both surveys were conducted after approval from the Department of Education of Santa Catarina. In 2001, all regions were visited for a direct contact with the GEREDs and training was scheduled. The collection material (sheets with instructions for application, questionnaires, pens, rulers, and a keychain for the teacher of the class) was sent to the GEREDs. A person previously trained applied the questionnaire in a guided way in the schools selected.

In 2011 contact was made with the GEREDs in order to communicate to the managers about the study, the support from FAPESC, and of the partnership with the Department of Education. On this occasion the following measures was requested to be carried out: send an official communication to the schools selected about the research project inviting them to participate; send the envelopes with the terms of informed consent (IC) in the passive form, and a communication to the school directors informing them that the survey team would contact them by phone to clarify any doubts, confirm participation, arrange a visit, and inform the procedures for the distribution of passive IC.

The confirmation of having received the material posted via Department of Education pouch services was obtained by telephone contact. In cases where the material was not received, it was resent by Sedex and when the managers confirmed sending the material to the schools selected, a team of the member would contact the school director to make sure it was received. If the material was lost or not received, another pack of materials

was sent by Sedex directly to the school under the responsibility of someone previously contacted.

The letter sent to the schools selected included some clarifications about the project and the following requests were made by telephone to the directors in relation to classes selected: to let them know about the visit of the team of researchers from UFSC for applying the questionnaire; to distribute the passive ICs and request from the students under the age of 18 to send them to those responsible (legal guardians) for them stating that it should be signed only in the case of not accepting to participate.

The schedule of visits to the schools included the day, time, and names of data collection team members who would visit the school properly identified (T-shirts and name tags). The team, which usually was of 2 people, would arrive at the school at least thirty minutes in advance of the starting time of the project's activities. The collection material consisted of a letter presenting the project, the questionnaires, a control form of the collection, explanatory banners, instructions manual, pens, correction fluid, clipboards, bookmarks for the students, T-shirts for the teachers of classes selected, and a book on "Physical Activity, Health, and Quality of Life" to be donated to the library. Upon arriving at the school, the leader would check the amount of IC forms not signed, would record the refusals with some information about the adolescent (gender, age), as well as the reason for the refusal on the control chart.

The survey was conducted in the classroom. One or two of the survey takers distributed the questionnaires and bookmarks and would give orientation per block of questions to the respondents. Upon completion of the instructions, the identification codes were filled in together with the group. Explanatory banners were also hung on the board for filling out the questions about sports activities during leisure time, body mass, and standard doses of alcoholic beverage. Prior to the application, the students were instructed not to erase, crumple, or fold the questionnaire, to use blue or black ink pen, and to use correction fluid in case of an incorrect answer. At the end of the application, the questionnaires were filed, keeping them in conditions suitable for optical reading. The time of the application of the questionnaire was 40 to 50 minutes. The period for collecting the data for the first survey was from August to November 2001 and for the second was from August to October 2011.

At each step a team member was responsible for making a "logbook" with detailed description of the facilitators, of the difficulties encountered, and other facts they deemed relevant to understanding the local reality.

Training the team

In 2011 an explanation was given about the tool and the instructions manual for the survey takers given by a properly qualified instructor. In this phase everything was simulated from the manager's approach all the way to giving the questionnaire. After this stage, further meetings were scheduled with the more experienced survey takers (graduate students

who had participated in other surveys) for a thorough discussion of the application manual. Along with this, training was given in three phases with members who had never participated in a survey: (1) the interviewer simulated applying the questionnaire for the colleague and instructor. They would intervene to point out positive and weak areas of the presentation; (2) a further application of the questionnaire was carried out without interruption and interference by the instructor with the suggestions being made at the end of the application; (3) finally, the procedures from the previous step were repeated, and at the end a final conclusion was reached on the role of the interviewer as an applicator of the questionnaire. The data collection team was composed of 12 people (6 graduate students, 4 professionals and 2 undergraduate students in Physical Education).

Ethical aspects

Both surveys were submitted to the Research Ethics Committee of the Federal University of Santa Catarina and received favorable opinions (Process no. 064/2000 and Process no. 1029/2010). In COMPAC 1, the IC was applied in its active version. In COMPAC 2, however, the IC was applied in its passive version. This change was made in order to reduce loss rates and refusals among participants, especially among those with a low educational level[23].

Prior to applying the questionnaire, some general guidelines were given to the students about the type of questions that would be made, and the importance and voluntary nature of their participation in the survey, as well as the guarantee of anonymity and confidentiality of the individual information collected. They were also instructed not to write their names on the questionnaires. As for the schools selected, their names will be kept confidential. Finally, Chart 1 shows a summary of the section of methods of this survey, demonstrating the topics that have remained identical in the two surveys along with some adjustments needed for improving the second survey.

Tabulation and analysis of data

In 2001 the data were double entered into the EPI-INFO 6.0 program with subsequent checking and correcting of errors and/or inconsistencies. In the second the software SPHYNX® was used (Sphynx Software Solutions Incorporation, Washington, United States) for the optical reading of the questionnaires. At this stage, the first check was performed to correct errors and/or inconsistencies through features available in the software itself followed by a manual review and correction. Also was prepared a database in Microsoft Office Excel version 2007 with the information contained in the control chart (record of refusals and reasons) along with a manual verification of question number twenty by typing in the exact duration (written response beside the question) of those that exceeded 99 minutes (limit given by the questionnaire) practicing some sports activity.

Chart 1. Summary of the methods used in the two surveys. Santa Catarina, 2001 and 2011.

Topics	Subtopics	Survey of 2001	Survey of 2011
Model of the study	School-based and cross-sectional epidemiological study.		
Population and sample	High school adolescents in the state of Santa Catarina between the ages of 15 and 19, of both sexes, including those studying during the day shift and evening shift, enrolled in state public schools.		
Sampling plan	Sample for calculation purposes: prevalence = 50%; sampling error = 2 percentage points, CI95%, *Deff* = 2.0, increase = 25% Strata: geographic region; PSU: Schools; SSU: classes.		
	Drawing of the PSUs	Systematic sampling	Simple random sample
	Drawing of the SSUs	- Drawing of a class per school with the addition of one more in the case of a small number of students or in schools with a larger number of classes.	- Drawing of five classes per school with a distribution equivalent to the grades.
Instruments	COMPAC Questionnaire Instructions	81 questions Orientation form	49 questions Instructions Manual
Procedures	Collection team	Teachers from the schools selected and of Physical Education linked to NuPAF/UFSC	Physical Education students and teachers linked to NuPAF/UFSC
	Application time	30-40 minutes	40-50 minutes
	Application of the questionnaire	Collective interview (guided way)	Collective interview (orientation by blocks)
Financial resources	Funding	CNPq (process no. 462799/00-0)	FAPESC (03/2010 PPSUS). Support from CNPq (productivity grants)
Ethical Procedures	Ethics Committee Informed Consent	Process no. 064/2000 Active form (active)	Process no. 1029/2010 Passive form (passive)
Tabulation	Statistical programs	EPI-INFO 6.0	SPHYNX®

This survey presents a complex sampling delimitation requiring the incorporation of the sample weight, which makes it possible to obtain accurate estimates and correct variances of the universe studied. Because of this all statistical procedures derived of this study should consider these aspects in the analysis. To describe the demographic and socioeconomic characteristics of the sample we used the distribution of absolute and relative frequencies and the "logbooks" written by data collection team were also analyzed.

RESULTS

The population distribution and the sample values (expected and reached) are described in Table 1.

Of the total of 5,463 students who participated in the survey in 2001, 380 were excluded because they were outside the age bracket (15 to 19 years old) and removals were 55 due to incorrect completion of the questionnaire. With this 5,028 students (2,044 boys) were included. In the second survey, 7,077 students participated, excluding 508 and removing 40 questionnaires for the same reasons cited above, totaling 6,529 students (2,903 boys) in the final sample (Figure 1).

Table 1. Population and sample planned and reached according to geographic region. Santa Catarina, 2001 and 2011.

Regions	Survey of 2001					Survey of 2011				
	Population	Sample				Population	Sample			
		Forecast		Reached			Forecast		Reached	
South	32,103	925	15.6	834	16.6	31,009	896	15.1	1,121	17.2
North	42,579	1,228	20.7	889	17.7	43,428	1,252	21.1	1,091	16.7
Coast	23,365	682	11.5	709	14.1	22,326	647	10.9	454	7.0
Valley	46,682	1,347	22.7	1,025	20.4	50,228	1,447	24.4	1,538	23.6
Highlands	24,767	712	12.0	651	12.9	13,509	392	6.6	532	8.1
West	36,047	1,038	17.5	920	18.3	45,072	1,299	21.9	1,793	27.4
Total	205,543	5,932	100.0	5,028	100.0	205,572	5,932	100.0	6,529	100.0

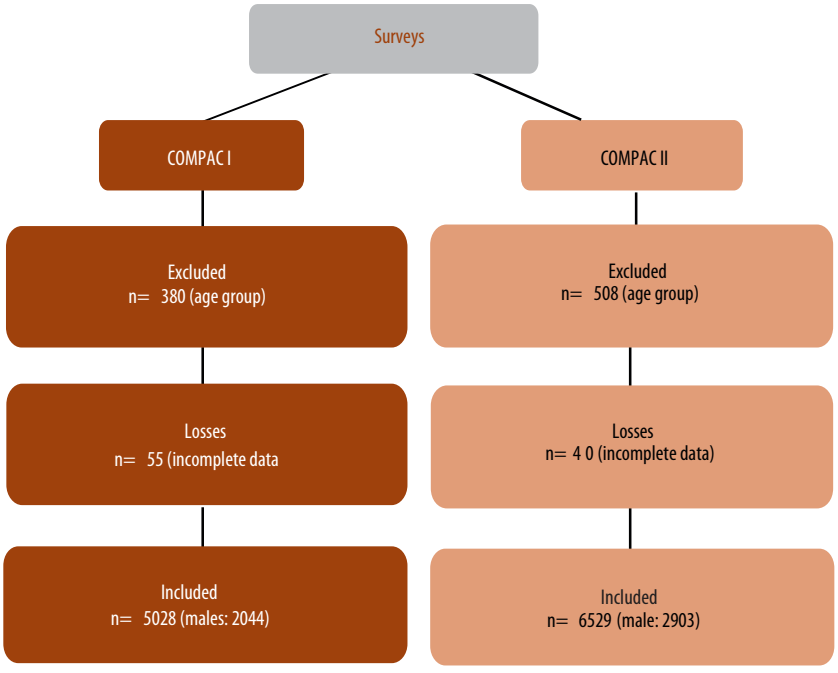

Figure 1. Description of the absolute frequency of the sample of students included and excluded. Santa Catarina, 2001 and 2011.

The rate of loss of the variables studied was below 5%. The general data of the demographic and socioeconomic characteristics of the adolescent students of Santa Catarina can be seen in Table 2. In both surveys, a greater proportion of girls, from singles youth, who lived with the family, who lived in urban areas, with intermediated income pattern and attending the second year of high school.

According to "logbooks" prepared by team leaders who traveled to collect collection, some barriers and facilitators could be identified during the collection process of the last survey as described in Chart 2.

Table 2. Demographic and socioeconomic characteristics of adolescent students. Santa Catarina, 2001 and 2011.

Variables	2001			2011		
	n	%†	Losses (%)††	n	%†	Losses (%)††
Gender			1.1			0.6
Boys	2,044	40.4		2,903	42.2	
Girls	2,984	59.6		3,626	57.8	
Age (years)			1.1			0.6
15 and 16	2,454	47.0		3,839	60.7	
17 to 19	2,574	53.0		2,690	39.3	
Marital status			0.6			0.4
Others	163	3.4		518	7.7	
Single	4,836	96.6		5,982	92.3	
Who they live with			0.2			0.4
Others	261	5.4			2.4	
Family	4,758	94.6			97.6	
Currently works			2.2			0.7
Yes	2,733	55.0			50.5	
No	2,242	45.0			49.5	
Residence			1.7			1.3
Rural	1,019	17.6			19.6	
Urban	3,981	82.4			80.4	
Monthly family income¥			3.0			1.8
1st tertile	1,697	32.4			31.3	
2nd tertile	1,832	37.8			50.3	
3rd tertile	1,404	29.8			18.4	
High school grade			1.8			0.6
1st	1,664	28.8			31.7	
2nd	1,942	42.7			36.0	
3rd	1,389	28.5			32.3	
School shift			1.1			0.6
Morning	2,196	46.2			74.0	
Night	2,832	53.8		2,584	26.0	

¥ Gross family income: monthly amount in minimum wages; † Weighted percentage; †† The percentage of losses refers only to filling out the questionnaire incorrectly.

Chart 2. Description of facilitators and barriers identified by the team collecting data for the COMPAC 2 project. Santa Catarina, 2011†

Items	Facilitators	Barriers
Preliminary contacts and Scheduling	- Using the communication system between the SEE and the GEREDs for sending survey material to the schools. - Previous research of addresses of schools and names of the directors on the SEE site and on the blogs of the schools. - Preliminary telephone contact to check the data and confirm the school's participation. - Previous contact with schools to schedule the date and time of the visit, as well as the classrooms selected.	- Some GEREDs did not have phone numbers. - Decentralization of those inside the GEREDs responsible for passing on the material to the schools. - Lack of funding for phone calls. - Difficulty in accessing internet in some places or the absence of telephone lines. - Delay in the school calendar due to a teacher strike.
Travel and lodging	- Detailed travel plans (with distance to be traveled, city maps, address and telephone number of the schools to gather data from, as well as specific classrooms and individuals to contact).	- Delay in starting to collect the data (strike in the schools). - Roads closed (floods and natural disasters). - Roads with loss of GPS signal. - Need to use the private car of the researcher. - Cities with no hotel available.
How the team was received by the students and school staff	- The team had a uniform. - Warmth was shown in interactions among people involved. - There was interest on the part of the administrators and teachers in the survey. - Students were informed about the survey and motivated by the school to participate.	- The Informed Consent forms had not been received by the school (strike of the postal services) so the date of the visit was remarked.
Application of the questionnaire	- Preparation of Kits with the material to be taken to each school by each team. - Utilization of a standard model of explanation of the questionnaire by blocks of questions. - Use of posters to help explain some questions. - Teachers on hand to help in whatever way necessary. - Use of the passive informed consent.	- Care with the storage of the questionnaires. - Difficulty of students to give their weight and height in smaller cities and rural areas in the western part of the state. - Ignorance on the part of some students about their family income. - Difficulty in the team making sure that the questionnaire was completely filled out when the class time used was before recess or the last class of the day.
Funding	- Financial support from FAPESC made it possible to carry out the project.	Imbalance in the distribution of Costs and Capital.

† Built based on the logbook written by the team leaders who traveled to collect the data

DISCUSSION

Some changes in the demographic and economic distribution of the sample may have occurred over time. For example, there was a reduction in the number of older students possibly due to the implementation of the parallel educational program for young people who were outside the age range for their respective school grades, called Education for Youth and Adults[24]. An increase was also noticed in the proportion of young people ages 15 to 17 years attending school in Brazil (7.8%)[25] and in Santa Catarina (6.5%)[26].

Despite a slight decrease in the proportion of young people who worked among those surveyed, the data has shown that from 2000 to 2010 the percentage of people (≥ 10 years old) with some occupation during the week of reference increased from 47.9% to 53 3% in the country with the state of Santa Catarina presenting the highest activity rate (71.6%) of the federal units (persons ≥ 15 years old)[27].

An increase of 12.3% was also seen in the Brazilian population and an increase of 3.8% in the proportion of urban residents in the last decade. In Santa Catarina, the population growth was 16.7% with a 6.7% increase in the proportion of people living in urban areas[27]. In both surveys there is a predominance of people living in urban areas.

The proportion of families with a medium income increased by one third and there was a 38% reduction in the proportion of households allocated in the highest income group. This probably happened because there was a substantial increase in the minimum wage in the last decade (from R$ 180.00 on Mar/30/2001 to R$ 545.00 on Feb/28/2011)[28,29]. In 2000, 23.3% of Brazilians (≥ 10 years old) received a minimum wage (reference: R$ 151.00) and 7.1% amounted to more than ten minimum wages during the week of reference[30]. While in 2010, 32.7% received up to one minimum wage (reference: R$ 510.00) and only 3.1% earned more than ten minimum wages[27], pointing to a trend toward reducing income inequality in the country.

Some methodological changes occurred between the surveys, which could interfere when comparing results. In this respect we highlight the adjustments in the sampling plan with a reduction in the percentage of schools (from 35.0% to 10.8%) and an increase in the percentage of classrooms (from 12.0% to 29.4%) in order to carry out field work within the budget available. It is important to point out that this adjustment modifies only the organization of the clusters.

Some resources facilitated the fieldwork and the data processing such as the previous elaboration of a travel plan and itinerary, the efficient communication between the teams collecting the data and the school administrators, the use of passive informed consent, which reduced the number of school visits and consequently the spending with collecting data. Furthermore, this feature has been associated with a reduction of losses and refusals among participants[23]. Finally, the tabulation of data through optical reading of the questionnaires facilitated the structuring of the database.

The main barriers faced by the project were the delay in collecting the data and the need to reorganize the planning due to some unexpected mishaps (strikes and natural disasters). When processing the data, the sample weight in the 2001 survey was obtained based on several crosses made between the database, the information provided by the coordinators of the COMPAC 1, and by SEE. However, it may not correspond in its entirety to what happened at the time. Finally, the difficulties encountered with the budget structure should be mentioned because the amount requested from the funding agencies took a cut of 21.4% exclusively for the item of costs. The amount debited for this task was able to cover less than half (37%) of the expenditures allocated to this function, causing budget cuts and changes in the logistics of the team's field work. This reflects a frequent difficulty in our country because most funding agencies give a priority to purchasing permanent material and make significant restrictions to resources needed for field work[31], which in turn generates a need

for researchers to use their own resources or for operational adjustments to be made.

FINAL CONSIDERATIONS

The adjustments made to the questionnaire COMPAC in the field work and in the format of the informed consent term helps to carry out the survey and reduces the rate of non-respondents. It is hoped that the methodological aspects used in this survey can give support to the development of other school-based epidemiological surveys and serve as support information for publications related to this project.

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Corresponding author

Kelly S. Silva
Campus Universitário, Coordenadoria de Pós-Graduação em Educação Física.
Bairro Trindade
CEP: 88040-900 -Florianópolis, Santa Catarina, Brazil
E-mail: ksilvajp@yahoo.com.br