

## Preference for leisure activities among adolescents in southern Brazil: what changed after a decade?

Cecília Bertuol<sup>1</sup>, Kelly Samara da Silva<sup>2</sup>, Valter Cordeiro Barbosa Filho<sup>3</sup>, Alexsandra da Silva Bandeira<sup>4</sup>, Marcus Vinicius Veber Lopes<sup>5</sup>, Adair da Silva Lopes<sup>6</sup> & Markus Vinicius Nahas<sup>7</sup>

### Preference for leisure activities among adolescents in southern Brazil: what changed after a decade?

#### Abstract

The preference for a specific activity during leisure time can directly influence its practice, both for active and sedentary behaviors. Thus, the purpose of this study was to identify changes after a decade in the preference for leisure activities according to gender and age group between two generations of adolescents from southern Brazil. It was a repeated cross-sectional study (2001–2011). Representative samples of high school students (aged 15–19 years) from public schools in the state of Santa Catarina were evaluated in 2001 ( $n = 5028$ ) and 2011 ( $n = 6529$ ). Students answered one question on the preferred leisure activity, organized into six groups of activities. Comparisons between surveys were based on the relative frequency and 95% confidence intervals (95% CI). After a decade, there were significant reductions (95% CI did not overlap) in the preference for practicing physical activities, cultural activities and other activities, while the preference for watching TV, playing video games and using computer increased over time. These trends were similar between boys and girls and between younger (15–16 years-old) and older (17–19 years-old) students. The magnitude of changes was bigger in the proportion of preference for using computer and for practicing physical activities. There was an increase in the preference for leisure activities that involve screen time use, but the preference for other leisure activities (e.g., physical and cultural activities) reduced after a decade. Reasons underlying the change in leisure preferences need to be examined to support future interventions.

**Keywords:** choice, leisure time, students, adolescent behavior, cross-sectional studies, trends

Different findings on the physical activity practice and sedentary behaviors (e.g., TV watching) during leisure time in adolescence have been found (Silva et al., 2014; Sigmundová, El Ansari, Sigmund and Frömel, 2011). Several studies have reported a reduction in the prevalence of physical activity (Azevedo, Horta, Gigante and Sibbritt, 2012; Sigmundová et al., 2011) and cultural activities (Sarriera, Tatim, Coelho and Bucker, 2007), and increase in the sedentary behavior (Fourie, Saayman and Slabbert, 2011; Hardman et al., 2013; Silva et al., 2014). The contrary or even similar direction of the prevalence of these indicators could be better understood if we knew what people choose to do in their leisure time. This may be the first step in exploring which activities are most prevalent at this stage of life, and discussing them in the future on how it is possible to improve unfavorable health scenarios.

Some aspects of the Theory of Planned Behavior (that proposes that the fundamental determinant of adherence to behavior is the individual's intention to perform it, and it can be influenced by attitudes, social norms, and perceived control over behavior) (Courneya, 1995) and the Theory of Social Cognition (which suggests that the behavior is influenced by the environment, by personal characteristics and even by itself, in which the adoption or maintenance of physical activity is associated with the expectations created with results, self-efficacy and intention to practice) (Seefeldt, Malina and Clark, 2002) suggest that attitude (individual evaluation about a specific behavior) is one of the main constructs in behavior adoption because it represents the way he/she practices and feels about it, which may affect his/her decisions and choices (Bernstein, Phillips and Silverman, 2011; Deforche, De Bourdeaudhuij and Tanghe, 2006). Studies have indicated that the preference for

1 Federal University of Santa Catarina, Florianópolis, SC, Brazil. Correspondence author: Cecília Bertuol. Federal University of Santa Catarina, Sports Center, Research Centre in Physical Activity and Health. Campus Universitário Reitor João David Ferreira Lima, Centro de Desportos. Florianópolis, SC, Brazil. Zip Code: 88040-900. E-mail: bertuolcecilia@gmail.com

2 Federal University of Santa Catarina, Florianópolis, SC, Brazil

3 Federal University of Santa Catarina, Florianópolis, SC, Brazil to Federal Institute of Ceará, Boa Viagem, CE, Brazil).

4 Federal University of Santa Catarina, Florianópolis, SC, Brazil

5 Federal University of Santa Catarina, Florianópolis, SC, Brazil

6 Federal University of Santa Catarina, Florianópolis, SC, Brazil

7 Federal University of Santa Catarina, Florianópolis, SC, Brazil

a specific activity during leisure time can directly influence its practice, both for active (Salmon et al., 2013; Santos, Hino, Reis and Rodriguez-Añez, 2010; Teixeira, Carraça, Markland, Silva and Ryan, 2012) and sedentary (Verloigne et al., 2015; Vik et al., 2015) behaviors. Therefore, it is understood that “preference”, an individual judgment (decision-making process) that is related to a set of objects or behaviors (Scherer, 2005; Slovic, 1995), is contemplated by the construct of “attitude” from the individual evaluation and, consequently, of the choice made. Thus, understanding the preference for different leisure activities may be a key to understanding population behaviors, both among adults and young people.

The preference for leisure activities can constantly change during adolescence, mainly because expectations and attitudes about a specific behavior are changeable during this life stage both among girls and boys (Chatzisarantis, Hagger, Biddle and Smith, 2005). Moreover, technological (e.g., increase of access and quality of electronic resources), structural (e.g., reduction of public spaces for leisure activities), and sociocultural changes (e.g., beliefs and customs of physical and cultural activities) are also relevant and may influence the decision-making process of preference for leisure activities among young people (IBGE, 2015; Malta et al., 2014; Roley et al., 2008).

Some studies (Esculcas and Mota, 2005; Hardman et al., 2013; Matias, Rolim, Schmoelz and Andrade, 2012) have shown that a preference for sedentary activities (e.g., watching TV and using computers) prevails over physically active practices during leisure time among adolescents. Distinctions between boys and girls have been evident in the preference for leisure activities (Hardman et al., 2013; Matias et al., 2012; Mota, Santos and Ribeiro, 2008; Péter et al., 2008), but age group distinctions in this variable has been unclear (Hardman et al., 2013; Prochaska, Sallis, Slymen and McKenzie, 2003). However, to our knowledge, no study focused on changes in preference for leisure activities among a young population after a period of time, neither did they analyze these changes according to gender and age groups. A study filling this gap is relevant in order to indicate the aspects that can explain behavioral trends among young people in different countries. This can be used in health education and promotion strategies that are focused on encouraging the practice of physical, cultural and intellectual activities during leisure time.

Thus, the present study aimed to identify the changes after a decade in the preference for leisure activities between two generations of adolescents (stratified by gender and age groups) in southern Brazil, considering data from two representative surveys that were conducted in 2001 and 2011. Based on the theoretical aspects and the literature, the hypothesis of the study was that there were significant changes in the preference for leisure activities over a decade among adolescents; however, the magnitude and direction of these changes were different according to the

type of leisure activity (e.g., physical, sedentary or cultural activities).

## Methods

### Sample

A repeated cross-sectional study (2001 and 2011) was carried out in the state of Santa Catarina, southern Brazil, with adolescents aged from 15 to 19 years, who were enrolled in high schools of the public school system. A detailed description of this study was presented elsewhere (K. S. d. Silva et al., 2013). Briefly, the participants of this study were selected for a statewide representative and school-based surveys entitled “*Comportamento do Adolescente Catarinense*” (COMPAC Project). Both surveys were approved by the Ethics Committee of the Federal University of Santa Catarina (Protocols No. 064/2000 and 1029/2010). Consent forms were received and the students and the selected schools were guaranteed anonymity.

To estimate the sample size, data from the School Census of 2000 and 2010 were used, indicating a total of 205,543 and 205,572 young people, respectively. Considering as strata the six geographical regions and their Regional Education Boards (GEREDs), the selection of the sample was conducted in two stages: (1) schools stratified by size (large:  $\geq 500$  students, medium: 200 to 499 students, and small:  $< 200$  students) as primary sampling units; and (2) classes stratified by shift and grade as secondary sampling unit. To calculate the number of schools needed was applied the proportionality criterion. In 2001, 216 schools were selected by systematic sampling, five refused, totalizing 211 schools (240 classes selected). In 2011, 90 schools were selected, however, considering the reduction of variability in the number of classes (e.g. a fixed number of 5 classes per school was established to meet the sample number, however some small schools had only 3 or 4 classes). Thus, small and medium schools were grouped according to the allocation of the corresponding GEREDs. Thus, 76 primary units of sampling were accounted (344 classes selected). For both years, the estimated sample size was 5,932 adolescents. Regarding to response rate, 55 questionnaires were removed in 2001 due to incorrect completion and in 2011, 40 questionnaires were removed for the same reason. Detailed information may be obtained in previous publication (Silva et al., 2013).

### Data collection

A questionnaire was structured for the COMPAC study based on international instruments, and a pilot study was carried out with the purpose of evaluating the psychometric characteristics of the instrument, presenting adequate reproducibility, objectivity, and face and content validity (Silva et al., 2013). Data collections were made in the classroom, and the length of time for applying the questionnaire was of 30 to 40 minutes. For this study, a question about the

preference for leisure activity was considered. The question was elaborated (in pilot study and meetings with experts) considering the theoretical support on the preferences, that is, the individual judgment (decision-making process) that is related to a set of behaviors (Scherer, 2005; Slovic, 1995). In 2001, students answered an open question, and in 2011 was applied one objective question with eight categories of responses based on the answers obtained by the students in the 2001 survey. To compare both surveys, we grouped the responses from 2001 according to the categorical responses from 2011. In both years, adolescents reported which activity they prefer to perform during leisure time (Kappa index: 0.64 in 2001 and 0.72 in 2011). Due to the low frequency of answers in some categories both in 2001 and 2011, the response items were grouped into six categories: practicing physical activities, watching TV, playing video games, using computer, practicing cultural activities or other (board games, manual activities and other activities). Data on gender (boys and girls) and age group (15–16 years-old; 17–19 years-old) were collected. The reproducibility indices (intraclass correlation coefficient) of the questions varied between 0.69 and 0.99 in 2001 and between 0.51 and 0.96 in 2011.

**Statistical analyses**

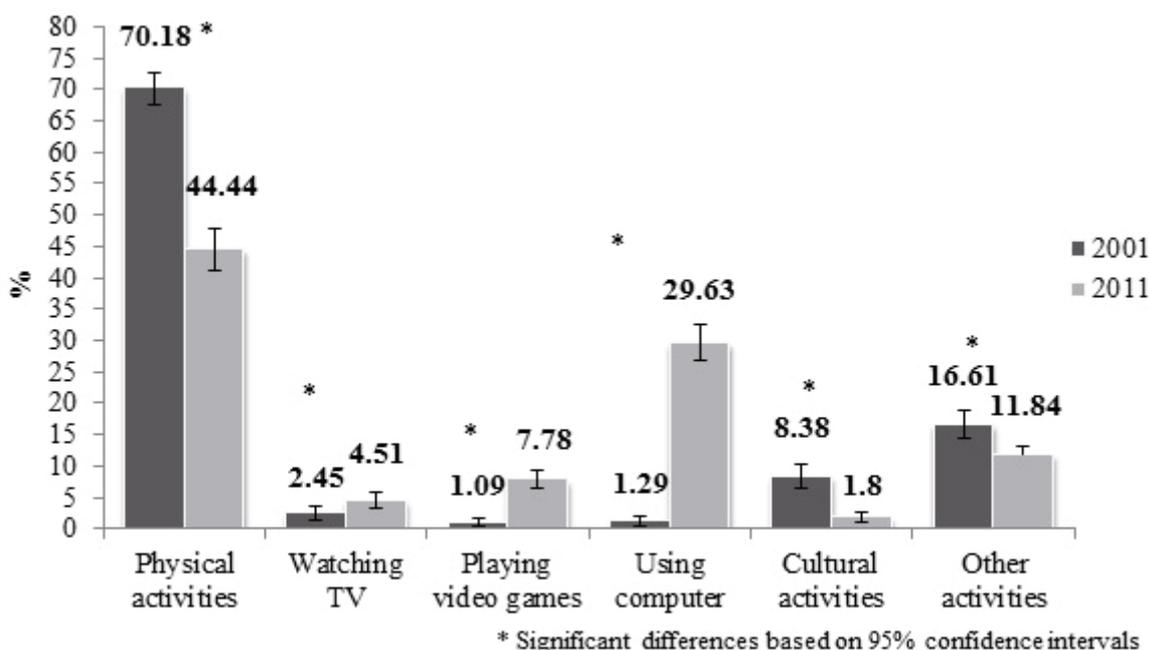
Comparisons between the two surveys were done using information of prevalence and 95% confidence intervals (CI95%) (du Prel, Hommel, Röhrig and Blettner, 2009).

Analyses were performed by gender (boys and girls) or by age group (15–16 years-old; 17–19 years-old). Procedures for studies with a complex sampling method were considered, using the software Stata version 13 (Stata Corp. LP, United States).

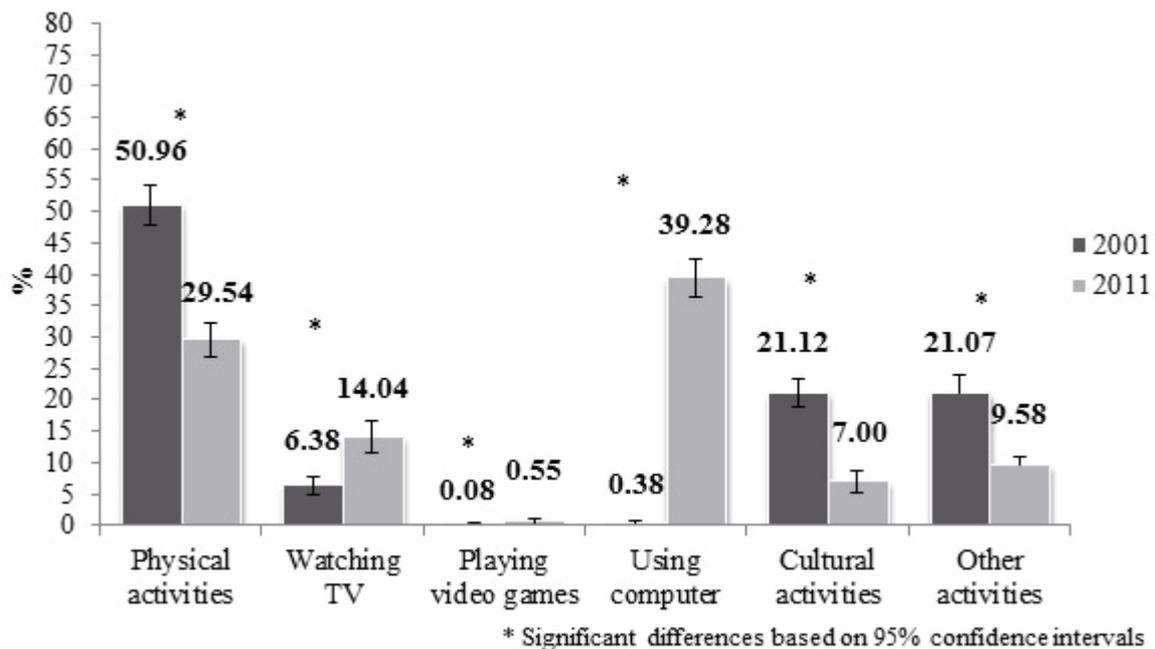
**Results**

The final sample was composed by 5,028 students (59.6% girls) and 6,529 students (57.8% girls), in 2001 and 2011, respectively. In 2001, there were a greater proportion of students with 17 to 19 years old (53.0%), while in 2011 the majority was 15 and 16 years old (60.7%).

The proportion of preference for each leisure activity in 2001 and 2011 is presented among boys (Figure 1) and girls (Figure 2, and data detailed in supplementary material). There were statistically significant reductions in the preference for practicing physical activities (25.7%), cultural activities (6.5%), and other activities (5.0%) among boys. Inversely, there were significant increases in the preference for watching TV (2.1%), playing video games (6.7%), and using computer (28.3%). Among the girls, the reduction of preference for practicing physical activities, cultural activities, and other activities were of 21.4%, 14.1%, and 11.5%, respectively. The preference for watching TV, playing video games, and using computer increased significantly over the decade: 7.7%, 0.5%, and 39.0%, respectively.



**Figure 1.** The proportion of preference for leisure activities among boys in 2001 (n = 1992) and in 2011 (n = 2837). Santa Catarina Brazil



**Figure 2.** The proportion of preference for leisure activities among girls in 2001 (n = 2886) and in 2011 (n = 3586). Santa Catarina Brazil

The proportions of preference for leisure activities among younger (15–16 years-old) and older adolescents (17–19 years) are presented in Figures 3 and 4, respectively (data detailed in supplementary material). Among younger adolescents, the proportion of preference for practicing physical activities, cultural activities, and other activities significantly decreased by 23.0%, 12.6%, and 7.2% respectively. Inversely, significant increases were observed in

the proportion of preference for screen time components (3.3% for TV, 2.9% for games, and 36.5% for computer). Among older adolescents, there was a significant reduction in the proportion of preference for practicing physical activities (22.8%), cultural activities (9.8%), and other activities (9.5%), but significant increases were observed for watching TV (7.4%), playing video games (3.3%), and using computer (31.4%).

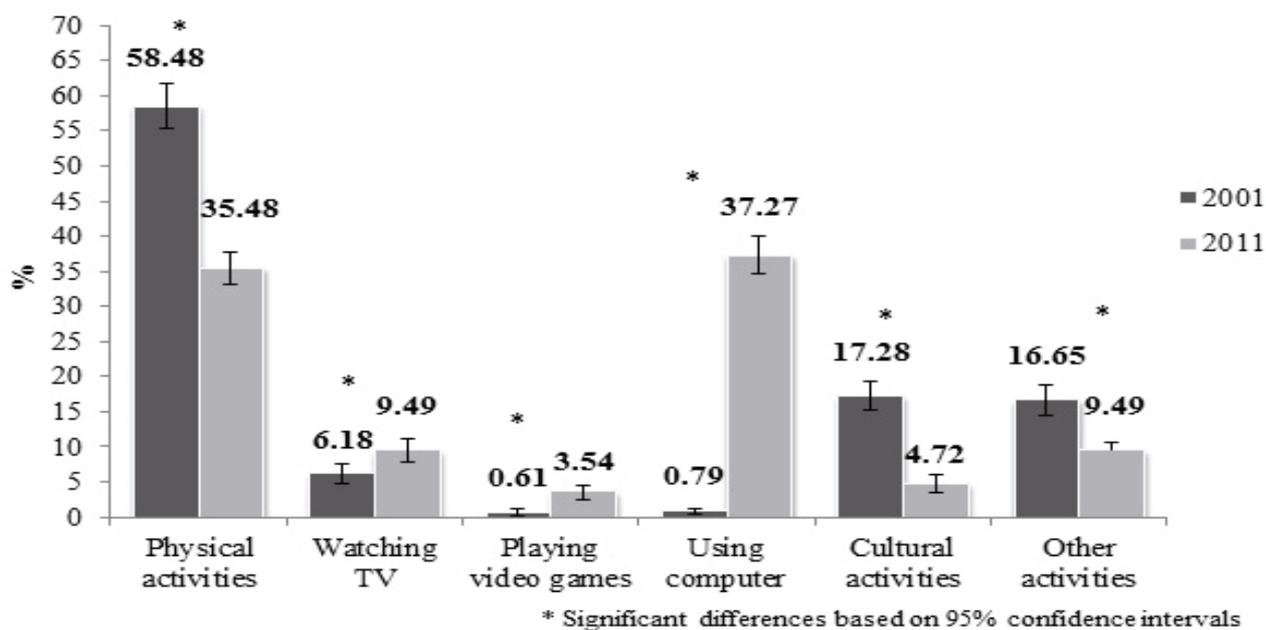


Figure 3. The proportion of preference for leisure activities among younger adolescents (15–16 years-old) in 2001 (n = 2886) and in 2011 (n = 3586). Santa Catarina Brazil

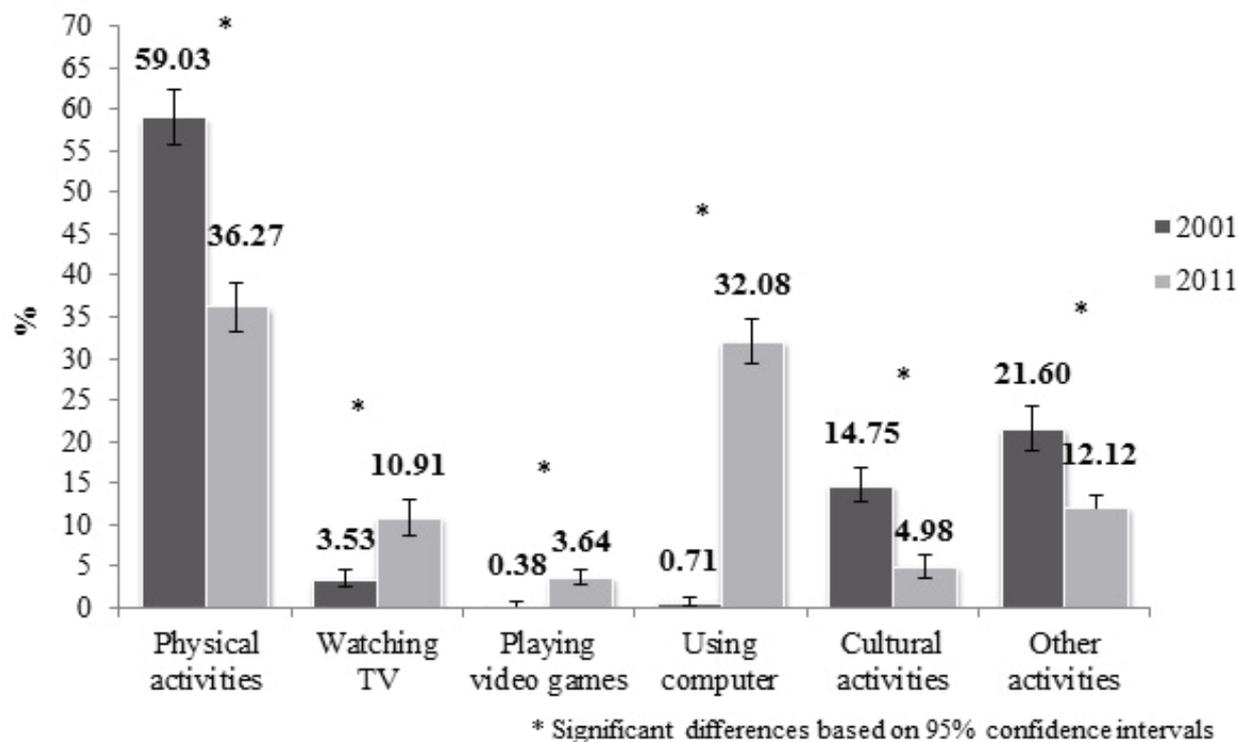


Figure 4. The proportion of preference for leisure activities among older adolescents (17–19 years-old) in 2001 (n = 2886) and in 2011 (n = 3586). Santa Catarina Brazil

## **Discussion**

The results of this study support the hypothesis that there were significant changes in the preference for leisure activities between the two generations of adolescents in southern Brazil from 2001 to 2011. Changes occurred in the preference for all six leisure activities, but a reduction occurred in some (practicing physical activities, cultural activities, and other activities) and an increase occurred in others (computer, video games, and TV). This trend occurred in both and boys and girls, as well as in younger and older adolescents.

The changes in the preference for activities during leisure time occurred simultaneously with changes in a set of objects (e.g., access to sport equipment, TV or computer) and behaviors (e.g., physical activities, watching TV) in the Brazilian context during the 2001-2011 period. These aspects, as preconized in the Theory of Planned Behavior (Courneya, 1995) and the Theory of Social Cognition (Seefeldt, Malina and Clark, 2002), may explain the change in the way youths practice and feel about leisure activities, and, thus, affect the decisions and choices (Bernstein, Phillips and Silverman, 2011; Deforche, De Bourdeaudhuij and Tanghe, 2006).

The preference for practicing physical activities was significantly reduced from 2001 to 2011, independent of gender and of age group. Studies have shown that the prevalence of practice of physical activities has reduced in the last few years for both genders (Azevedo et al., 2012; Sigmundová et al., 2011) and as adolescents grow up (Allison, Adlaf, Dwyer, Lysy and Irving, 2007; Sagatun, Kolle, Anderssen, Thoresen and Sjøgaard, 2008). However, to our knowledge, no study has examined the change of preference for practicing physical activities in a young population over time.

Possible explanations for these findings involve the reduction of the psychosocial (D'Haese et al., 2016) and environmental factors related to physical activity that can affect individuals' preferences and practices, as proposed by both Theory of Social Cognition and Theory of Planned Behavior (Seefeldt, Malina and Clark, 2002; Courneya, 1995). Among the psychosocial factors, self-efficacy and previous experiences in physical activities may interfere with how the individual assesses his/her preference for being or not being physically active during leisure time (Dishman et al., 2005; Fu et al., 2013). Considering environmental factors, the access to equipment and spaces for physical activities in free-time (Marcellino, 2000) and the increase in insecurity and violence in public spaces (Loureiro, Matos, Santos, Mota and Diniz, 2010) can be related to the reduction in the preference for practicing physical activities during leisure time.

The reduction in the preference for practicing physical activities during leisure time after a decade becomes a public health concern, because this reduction may facilitate the maintenance of an inactive lifestyle that has been observed among young people (Iannotti and Wang, 2013).

Public policies that focus on active practices and recreation in order to encourage participation in different and enjoyable physical activities among adolescents should be encouraged. This may help to combat the negative changes in the preference for practicing physical activities among Brazilian adolescents.

Cultural and recreational activities are important in the educational process, supporting creativity development and cultural awareness, and have a strong impact on reducing violence in low-income communities (Sarriera et al., 2007). However, the access to cultural activities, such as theater performances and cinema, is often determined by socio-economic conditions and, in some cases, are not even available. In 2012, the proportion of Brazilian municipalities that had access to cultural centers, museums, theaters and cinemas were 33.9%, 25%, 22.4% and 10.7%, respectively (Pinheiro, Ribeiro, Venturi and Novaes, 2016). The accesses to public library, on the other hand, were available in 97% of the municipalities and should be encouraged among adolescents. According to the same report, these proportions were lower in 1999 (Pinheiro et al., 2016). Although, a significant reduction in the preference for cultural activities and other leisure activities from 2001 to 2011 was observed in this study. Investigations are needed to clarify why these changes occurred.

The significant increase in the preference for screen use (especially using computer) after a decade corroborates with other studies that, although they did not analyze changes in preference for leisure activities, showed an increase in sedentary behaviors among adolescents during leisure time (Fourie, Saayman and Slabbert, 2011; Hardman et al., 2013; Matias et al., 2012; Silva et al., 2014). The emergence of access to new electronic devices could be the main factor that contributes to this increase in preference for screen use and sedentary behavior among adolescents, although this hypothesis needs to be evaluated by future researches.

The magnitude of change (increase) was bigger in the proportion of preference for using computer from 2001 and 2011. An increase in the preference for playing video games was also observed, but with lower magnitude. Previous studies showed and highlighted the changes in sedentary behavior patterns among adolescents, such as an increase in computer use and in playing video games (Iannotti and Wang, 2013; Sigmund et al., 2015), including in Brazil (Silva et al., 2014). Computers allow the performance of different activities on a single platform (e.g., listening to music, watching movies, and interacting with friends), which makes it very attractive for adolescents. Moreover, recent evidence demonstrated that individual factors such as a preference for computer use and low self-efficacy to control screen use are significantly associated with computer use among adolescents (Verloigne et al., 2015). These aspects may explain the increased use and preference for this activity among adolescents during leisure time (Biddle, O'Connell and Braithwaite, 2011).

The preference for watching TV during leisure time also increased after a decade, but with lower magnitude in comparison to other screen components. Studies showed that the preference for watching TV is significantly associated with the time spent watching TV (Verloigne et al., 2015), although there was a reduction in this behavior among adolescents (Sigmund et al., 2015; Silva et al., 2014). Environment factors could support the increase in preference for watching TV. In Brazil, most households have a TV and it is increasing; from 2004 to 2014, the proportion of households that had at least one TV increased from 90% to 97% (IBGE, 2015), which allows constant access to TV. Also, the support and model of parents and family can also influence this behavior among adolescents. Moreover, the parents' attitudes regarding this behavior can also influence the children's time watching TV, and usually parents tend to encourage or do not limit the time watching TV if they believe that this can cause cognitive, emotional, and physical benefits (Lauricella, Wartella and Rideout, 2015). Therefore, interventions are needed to provide information to parents on the risks associated with excessive time spent watching TV, as well as encouraging them to promote a household environment for the adoption of healthy habits.

The study had some limitations. Firstly, some methodological changes occurred between the surveys from 2001 and 2011, such as the adjustment of sample design, with a reduction in the percentage of schools (35.0% and 10.8%) and an increase in the percentage of classes (12.0% and 29.4%). However, statistical procedures to adjust the estimates for complex sample selection were made in order to minimize such biases. Secondly, the sample included only adolescent students from public schools; thus, this was not a representative sample of students from private schools and those who did not attend the school system. This study did not evaluate information about which kind of activities the adolescents performed while they watched TV or used computer (e.g., playing, studying, and surfing on the Internet). This may negatively influence this study because the preferences for some activities during leisure time were not classified in other options.

One of the strengths of this study was the analysis of changes in the preference for leisure activities between two generations of adolescents, a variable that helps us unders-

tand the changes in adolescents' lifestyles and were not previously studied in repeated representative cross-sectional surveys. Another strength was the description of the preference for different activities during leisure time. This allowed for identifying that changes occurred in several leisure activities, but in different ways and directions. Finally, data from representative samples of students from a Brazilian state allowed a greater power of generalization of the results.

The preference of adolescents for physical activities, cultural activities and other activities reduced significantly from 2001 to 2011. This was accompanied by a considerable increase in preference for screen use activities. The pattern of change was similar in both genders and age groups. It seems that changes in the preference for leisure activities occurred between generations, mainly by an increase in the preference for sedentary activities and a reduction in the preference for physically active practices. Thus, intervention strategies should focus on positive attitudes that reduce the preference for sedentary activities and encourage physically active practices among adolescents. Besides that, reasons underlying the change in leisure preferences need to be examined to support future interventions. Moreover, future longitudinal studies may evaluate whether secular changes in the preference for leisure activities among adolescents correspond to temporal changes in their preference and behaviors.

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## Preferencia para las actividades de ocio entre adolescentes en el sur de Brasil: ¿qué cambió después de una década?

### Resumen

La preferencia por una actividad específica en el ocio puede influir directamente en su práctica, tanto para los comportamientos activos como los sedentarios. Así, el objetivo de este estudio fue identificar cambios tras una década en la preferencia por actividades de ocio de acuerdo con el género y con la franja etaria entre dos generaciones de adolescentes del sur de Brasil. Para ello, se realizó un estudio transversal de repetición en 2001 y 2011. Se evaluaron muestras representativas de estudiantes de secundaria (15-19 años) de escuelas públicas del estado de Santa Catarina en 2001 (n = 5028) y 2011 (n = 6529). Los alumnos contestaron a una pregunta sobre la actividad de ocio preferida, organizada en seis grupos de actividades. Las comparaciones entre las encuestas se basaron en la frecuencia relativa y en los intervalos de confianza del 95% (IC95%). Después de una década, hubo reducciones significativas (IC95% no se solapó) en la preferencia por la práctica de actividades físicas, actividades culturales y otras actividades, mientras que la preferencia por ver la televisión, jugar a

los videojuegos y usar las computadoras aumentó con el paso del tiempo. Estas tendencias fueron similares entre niños y niñas y entre estudiantes más jóvenes (15–16 años) y mayores (17–19 años). La magnitud de los cambios fue mayor en la proporción de preferencia por el uso de las computadoras y por la práctica de actividades físicas. En conclusión, se observó un aumento en la preferencia por actividades de ocio que involucran el uso del tiempo de pantalla, pero la preferencia por otras actividades de ocio (por ejemplo, actividades físicas y culturales) se redujo tras una década. Las razones subyacentes al cambio en las preferencias de ocio deben ser examinadas para apoyar a futuras intervenciones.

**Palabras clave:** elección, ocio, estudiantes, conducta del adolescente, los estudios transversales, tendencias

### Preferência por atividades de lazer em adolescentes do sul do brasil: o que mudou após uma década?

#### Resumo

A preferência por uma atividade específica no lazer pode influenciar diretamente sua prática, tanto para comportamentos ativos quanto sedentários. Assim, o objetivo deste estudo foi identificar mudanças após uma década na preferência por atividades de lazer de acordo com o gênero e a faixa etária entre duas gerações de adolescentes do sul do Brasil. Para isso, um estudo transversal de repetição foi realizado em 2001 e 2011. Amostras representativas de estudantes do ensino médio (15–19 anos) de escolas públicas do estado de Santa Catarina foram avaliadas em 2001 (n = 5028) e 2011 (n = 6529). Os alunos responderam a uma pergunta sobre a atividade de lazer preferida, organizada em seis grupos de atividades. As comparações entre as pesquisas foram baseadas na frequência relativa e nos intervalos de confiança de 95% (IC95%). Após uma década, houve reduções significativas (IC95% não se sobrepôs) na preferência por praticar atividades físicas, atividades culturais e outras atividades, enquanto a preferência por assistir TV, jogar videogames e usar computador aumentou com o tempo. Essas tendências foram semelhantes entre rapazes e moças e entre estudantes mais jovens (15–16 anos) e mais velhos (17–19 anos). A magnitude das mudanças foi maior na proporção de preferência pelo uso do computador e pela prática de atividades físicas. Como conclusão, houve um aumento na preferência por atividades de lazer que envolvem o uso do tempo de tela, mas a preferência por outras atividades de lazer (como atividades físicas e culturais) diminuiu após uma década. As razões subjacentes à mudança nas preferências de lazer precisam ser examinadas para apoiar futuras intervenções.

**Palavras chave:** escolha, tempo de lazer, estudantes, comportamento do adolescente, estudos transversais, tendências

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