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Who are the girls that don't quit: features and particularities of the physically active portuguese female adolescent

Quem são as garotas que não desistem: características e particularidades do adolescente feminino português fisicamente ativo

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Resumo

O Objetivo desta pesquisa foi identificar as caraterísticas das adolescentes Portuguesas que praticam actividade física (AF) regularmente. Usando dados do estudo Health Behaviour in School-aged Children (HBSC) em Portugal identificaram-se 187 meninas de 16 anos (ou mais) frequentando o 10º ano de escolaridade e praticantes regulares de AF (G1). Criaram-se aleatoriamente outros grupos: o grupo de de meninas de 16 anos (ou mais) não praticantes de AF e frequentando o 10ª ano (G2); o grupo de meninas de 12 anos (ou menos) frequentando o 6º ano e praticantes regulares de AF (G3) e o grupo de 12 anos (ou menos) frequentando o 6º ano e não praticantes regulares (G4). As adolescentes no G2 vêem mais TV do que o G1 e G3. O uso de computador foi maior nas meninas do G1 e G2. O G4 teve a frequência mais elevada a fazer jogos no computador. Têm de ser tidas em consideração as diferenças relacionadas com as atividades de tempos livres na implementação de ações de promoção da saúde, visando meninas adolescentes inativas.

Palavras-chaves: Adolescentes; Atividade física, Comportamentos sedentários

Abstract

The aim of this research is to identify the characteristics of Portuguese adolescent girls who practice physical activity (PA) regularly. Portuguese Health Behaviour in School-aged Children (HBSC) was used and identified 187 girls aged 16 years (or more), attending the 10th grade, who regularly practice PA (G1). Randomly, other groups have been set with the same number of adolescents: the group of girls who did not practice PA, aged 16 years (or older) attending the 10th grade (G2), the group of girls with 12 years of age (or younger), attending the 6th grade, with a regular practice of PA (G3), and a group of similar age and school grade, with no regular PA practice (G4). The G2 watches more TV than G1 and G3. Computer use is higher among girls belonging to G1 and G2. G4 has the highest frequency of playing games in the computer. Differences related to sedentary leisure activities need to be considered when implementing health promotion actions regarding inactive adolescent girls.

Keywords: Adolescents, Physical activity, Sedentary behaviours

Introduction

Physical Activity (PA) is an important component to a healthy lifestyle, preventing chronic diseases and obesity. Regarding this particular aspect it is consensual for most researchers that girls have a poor adherence and regular practice of PA when compared to boys. Thus, this issue assumes additional importance in understanding the determinants that influence the practice and the implementation of programs to promote PA[1].

To researchers, age is one of the most important determinants[2] and we can find that there is an increase in practice PA in early adolescence and a decline after getting to 13 years of age in both sexes[3].

The older adolescents have a fairly consistently lower PA, from moderate to vigorous, than the younger adolescent girls. The decrease of the practice, seen in cross-sectional studies, was 1.76 minutes of moderate to vigorous PA per day. The age becomes an important aspect for the promotion of PA amongst girls who are approaching the end of adolescence [4].

One of the most significant milestones in a women's life is the menarche, with both physiological and psychological changes associated, which can result in a traumatic and uncomfortable event, probably due to misinformation about the menstrual activity[5]. This moment also marks the beginning of the reproductive period of women but it can mean much more than that. According to Jacobsen, Heuch and Kvale[6] it was found an inverse association between menarche's age and the mortality rate from all causes. In women with an early menarche (10-11 years) it was found that 10% had higher mortality when compared to women whose menarche began with an average age of 14 years.

For Jasik and Lustig[7] this is a particularly sensitive moment to weight gain due to the synergy of metabolic changes that occur naturally along with increasing behavioural risk factors. In some teenagers, menarche may cause changes in how they physically conduct their practices and in the way certain loads of exercise can change their menarche and menstruation. In the study of Kishali, Ämamoglu, Katkat, Atan and Akyol [8], conducted amongst young athletes, it was found that the menarche occurred later in athletes and their physical performance was not affected by the menstrual period.

Quite often, some adolescents and women perceive the premenstrual syndrome. This syndrome consists of a broad group of emotional, behavioural and physical processes that occur several days to several weeks before menstruation and that disappear after the onset of menstruation [9]. There are some studies that show that the practice of PA seems to be associated with lower registers of premenstrual syndrome [10].

A widely debated aspect is the massive adoption of various sedentary behaviours and how they are related to adolescent health. Watching television (TV) has been one of the most studied sedentary behaviours. This is due to its preponderance in the leisure time of adolescents. Olds, Ridley and Dollman[11] found that 73% of the time of exposure to the screen is done watching TV, playing video games 19%, 6% use the computer without playing, and 2% use it for games and watching movies. The contemporary youth watches on average 1.8 to 2.8 hours of television per day, depending on age and gender. In adolescents in particular there is an average of 106 minutes per day and there were no

significant differences between genders [12]. However, the time they spend doing it is not consensual.

Sedentary lifestyle of watching TV and its relationship with the practice of PA is far from consensual. Gorely, Marshall and Biddle[13] did an extensive literature review and, verified that watching TV is independent from gender, body fat, aerobic fitness levels and PA. Van den Bulcke and Hofman[14] considered that it takes two and a half hours of exercise per week to compensate for seven hours of TV per week in order to protect the individual of being overweight. However, watching TV does not predict the time spent exercising neither longitudinally nor transversely. Adolescents who do not participate in active activities (in their leisure time) reported spending more time watching TV and the increase of 1 hour per day of TV was not a performing predictor of PA. The physical practices in leisure time, only in females, seem to be influenced by certain modifiable factors of the built environment as well as the time spent watching TV (15). Knutson and Lauderdale[16] believe there is, for every hour of television exposure, 20% probability of increasing obesity, and that it doesn't differ by gender. However, there are conflicting reports that do not allow the consolidation of the association between gender, particularly among the female gender[17].

Another relevant aspect to the health of young people relates to their sleeping habits. For most adolescents, insufficient sleep results from the interaction between intrinsic factors such as puberty, and extrinsic factors, such as the time of the beginning of school[18]. Not sleeping enough hours leads the young to have symptoms of daytime sleepiness. It has been shown that sleepiness interferes dramatically with many of the routines and daily activities. The reduction of normal daily behaviour with an obvious negative impact on the academic performance, behavioural changes and psychological problems were highlighted in the investigation of Gaina et al. [19], where 25% of the sample describes to feel sleepiness almost all the time and 47.6% feel it often. A study conducted in Taiwan with 634 adolescents of both genders, found a negative association between the small number of hours of sleep and the following healthy behaviours: enjoying life, responsibility for health, adopting a healthy diet and an effective management of stress. Thus, adequate sleep seems to be positively associated to the high probability of becoming obese and low frequency of visits to physicians [20].

Sleep seems to be a subject marginalized and not valued by society. However there are a high number of young people (62%) that report to have had at least one sleep problem in the past six months. More sleep problems were identified: waking up tired, going to bed reluctantly and sleeping paralysis. Moreover, disorders related to excessive daytime sleepiness are also a fairly common problem, affecting about 30% of children and young people[21].

Fatigue defined as a perception of low energy after normal activity is another of the phenomena that are quite common within the juvenile speech, being mentioned by 30% of adolescents [22]. Different approaches have been made to this matter, which although popular have failed to grasp the multidimensional nature of this complex phenomenon. The lack of an objective test of fatigue has contributed to the lack of scientific consensus and fatigue causes are overlooked as a juvenile investigation, despite its high prevalence and morbidity[23]. Existing information indicates that older girls have higher rates of fatigue, are less active and sleep less [24]. In studies from Sundblad, Jansson, Saartok, Renstrom and Engstrom [25] it was found that girls when compared to boys have more pain complaints and have a continued state of physical inactivity. The authors estimate that 20% of complaints are due to factors such as stress, physical inactivity, gender and grade.

Given that the female gender and increased age are strongly associated to a low level of PA practice, this research aims to identify the characteristics of older adolescents, namely girls, who engage in regular PA in the week. The aim is also to compare the characteristics identified by the girls who were not engaged in the same age and that were younger.

Methodo

This study used data from the Portuguese sample of the 2006 "Health Behaviour in School-Aged Children (HBSC) (26). The HBSC is a collaborative study of the World Health Organization (WHO), has as main objectives to study and monitor the lifestyles of teenagers and their behaviour in different social contexts. The study began in 1982 with the participation of researchers from 3 countries and in 2006 involved researchers from 44 countries.

This study followed all rules for research in humans, specifically minors: the questionnaire was approved by an ethical committee (S. João Hospital-Porto), the Ministry of Education, and the five education directions; each school and parent-informed consent was required through the parent's school committee.

Instrument

The instrument used was a questionnaire, "Behaviour and Health in School-Aged Children". Countries participating in the HBSC study included all required items of the questionnaire covering different aspects of health: the demographic, behavioural and psychosocial problems. All questions followed the format specified in the protocol [27] comprising demographic questions (age, gender, socioeconomic status), positive health issues, alcohol, tobacco and drugs, physical activity, sexual behaviours, injuries and violence, family, peer group, leisure and culture group.

Participants and data collection

From a national list stratified by region, 136 were randomly selected public schools in Portugal, taking the class as the unit of analysis. The questionnaire was delivered to students by teachers during their classes. Students who missed school that day were not included in the study. The completion of the questionnaire was conducted on a voluntary and anonymous basis. All questionnaires were delivered to the teacher who put them in an envelope and sealed it in the presence of students. The questionnaire was used with the permission of the school and parents of teenagers involved.

The sample consisted of 4877 individuals; it is a representative sample of students attending 6th, 8th and 10th grades in regular schools in Portugal.

For this study we included only female subjects, which represented 50.4% (2460 participants) of the total sample. They had an average age of 14.1 years (SD ± 1.85 years) and 28.8% (708) attended the 6th grade, 36.7% (903) attended the 8th grade and 34.5% (849) attended the 10th grade.

Later, 187 girls who performed PA more than three times a week were identified, 16 years or older and who studied in the 10th grade. Thus, the subjects who showed these characteristics were designated as Group 1 (G1). To allow comparisons, which would not be influenced by the number of individuals that comprise a particular group, it was decided that the same number of individuals who were identified in the control group (G1) would be selected randomly to form other groups. Complying with this guideline Group 2 (G2), in which girls non-practicing PA were selected, was constituted with 16 year old girls or older and attending 10th grade. Group 3 (G3) contained girls that practiced PA, were 12 years old or younger, who were attending 6th grade and finally in Group 4 (G4) girls not practicing PA, who were 12 years or less and, attending 6th grade. Thus, four groups were created with very specific features but in equal proportions.

Pupils who missed school on the day of evaluation were not included. It was not possible to estimate this number due to logistical reasons.

Variables

Given the purpose of the study, and according to the extensive literature reviewed, we selected a set of variables in the 2006 HBSC survey, which are shown in Table 1. A more detailed analysis of the variables can be found in the international report [27].

Table 1 – Variables description

Questions	Code
1 – You're a boy or a girl?	a- Boy; b) Girl
2 – When were you born?	
13 – In the last 7 days, how many days did you practice physical activities (at least 60 min. per day)?	0 to 7 days
30 – Over the past six months, how often did you feel: a) headaches, b) stomach pains, c) backache, d) being sad / depressed, e) angry or bad mood, f) nervous , g) difficulties in falling asleep, h) dizziness, i) sore neck and shoulders, j) fear, l) fatigue and exhaustion	1 - Almost every day 2 - more than once a week 3 - almost every week, and 4 - almost every month, 5 - Rarely or never
32 – Are you already menstruated (do you have the period)?	0 – No, 1- Yes
66- In your free time, how many hours per day do you watch TV (including videos and DVDs) during the week? And during the weekend?	
67 – During your free time, how many hours per day do you play computer or console (PlayStation, Xbox, etc.)? And during the weekend?	a- none, b- about 30 min./day, c- 1h/day, d- 2h/day, e- 3h/day, f- e 4h/day, g- 5h/day, h- 6h/day, i- 7h/day or more
68 – During your free time, how many hours per day do you use the computer (to "talk/chats", "surf" on the Internet, or "send emails", homework, etc.)? And during the weekend?	

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To improve the understanding of the results it was necessary to re-encrypt variables, as shown in-Table 2.

Table 2 - Construction of variables and their designation

Variables	Re-encryption
Menstruated	**1**- No**; 2**- Yes
Difficulty in falling asleep Symptom of fatigue and exhaustion	**1**- Rarely; **2**- Casually; **3**- Frequently
Watching TV and DVD in 7 days(Average week+weekend). Playing computer games in 7 days (average week+weekend). Using the computer in 7 days (average week+weekend).	**1**- < 3 h/day**; 2**- 3 a 5 h/day**; 3**- > 5 h/day

Statistical analysis

The processing and data analysis were done with SPSS version 16 for Windows (SPSS, Chicago IL, USA).

Initially, by applying the Chi square test (χ^2; $p<0.05$), we tried to understand the differences between different groups of adolescents. To identify significant differences among the variables, the value $\geq | 1.9 |$ was considered the residual set.

Later, according to analysis of variance performed, we tried to confirm the differences between the groups using the Tamhane test.

Results

In Table 3 we can find the χ^2 test results of the 4 groups of adolescents in relation to their sedentary occupations, sleeping difficulty, fatigue and menstruation.

With regard to the variable sleeping difficulty, we can see that younger girls practicing PA (G3) and those that don't practice (G4) are those that rarely have difficulty sleeping (27.6% and 27.8% respectively). G2 states often to have more difficulty in falling asleep (32%).

Regarding the perception of fatigue and exhaustion, there are the elements of G4 that rarely perceive this symptom (39%) and the members of G2 are the ones that most frequently acknowledge this complaint (32.2%).

Table 3- Analysis of independent variables on the basis of the study groups

Variables n		G1		G2		G3		G4	
		%	n	%	N	%	n	%	
Difficulty in falling asleep*	Rarely	116	**23.0**	109	**21.6**	139	**27.6**	140	**27.8**
	Casually	37	**32.2**	38	**33.0**	21	18.3	19	**16.5**
	Frequently	32	26.2	39	**32.0**	25	20.5	26	21.3
Fatigue and exhaustion*	Rarely	45	**14.8**	35	**11.5**	106	**34.8**	119	**39.0**
	Casually	85	**33.2**	94	**36.7**	43	**16.8**	34	**13.3**
	Frequently	55	**31.1**	57	**32.2**	35	19.8	30	**16.9**
Watch TV/DVD*	< 3h/day	21	21.0	18	18.0	29	29.0	32	32.0
	3 a 5 h/day	78	28.4	53	**19.3**	77	28.0	67	24.4
	>5 h/day	84	23.8	111	**31.4**	73	**20.7**	85	24.1
Using the computer *	< 3h/day	64	**18.0**	70	**19.7**	116	**32.7**	105	**29.6**
	3 a 5 h/day	72	**29.9**	62	25.7	49	**20.3**	58	24.1
	>5 h/day	48	**35.3**	50	**36.8**	16	**11.8**	22	**16.2**
Playing computer *	< 3h/day	130	**28.8**	113	25.1	111	24.6	97	**21.5**
	3 a 5 h/day	41	**19.7**	50	24.0	48	23.1	69	**33.2**
	>5 h/day	14	19.2	19	26.0	21	28,8	19	26.0
Menstruation*	No	0	**0.0**	1	**0.4**	127	**52.5**	114	**47.1**
	Yes	179	**37,1**	181	**37,6**	53	**11,0**	69	**14,3**

Legend: G1 - ≥16 years, 10th grade, practicing regularly PA; G2 - ≥16 years, 10th grade, not practicing regularly PA; G3 - ≤ 12 years, 6th grade, practicing regularly PA; G4 - ≤ 12 years, 6th grade, not practicing regularly PA; *X^2; $p < 0.05$; Residual set ≥|1.9| are considered significant (in **bold**)

With regard to the sedentary nature of activities, particularly watching TV/DVD in the category less than 3 hours per day, no differences were found between the study groups. The biggest consumers of TV/DVD (> 5 hours / day) are teenagers from G2 (31.4%). Regarding the use of a computer, the elements of G3 (32.7%) spend less time on this activity (<3 h/day), while G2 have the highest consumption (36.8%). With regard to playing computer games, G1 is associated to a lower daily use (<3 h / day), with 28.8% of responses and differences between groups regarding playing computer more than 5 hours were not identified.

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Table 4 - Comparison between groups of the variables studied using the Tamhane test

Variable	group (I)	groups (j)	Mean Dif. (I-J)	Std. Error	Sig.
Difficulty in falling asleep	G1	G2	0.162	0.141	0.82
		G3	-0.162	0.136	0.79
		G4	-0.184	0.136	0.69
	G2	G3	-0.324	0.143	0.13
		G4	-0.346	0.143	0.09
	G3	G4	-0. 022	0.137	1.00
Fatigue and exhaustion	G1	G2	0.088	0.142	0.99
		G3	**-0.697***	0.146	0.00
		G4	**-0.861***	0.143	0.00
	G2	G3	**-0.785***	0.143	0.00
		G4	**-0.949***	0.139	0.00
	G3	G4	-0.164	0.144	0.82
Watch TV/DVD	G1	G2	**-0.568***	0.181	0.01
		G3	0.086	0.196	0.99
		G4	-0.07	0.195	1.00
	G2	G3	**0.65***	0.203	0.01
		G4	0.50	0.203	0.08
	G3	G4	-0.16	0.215	0.98
Using the computer	G1	G2	0.08	0.227	0.99
		G3	**1.33***	0.214	0.00
		G4	**1.12***	0.22	0.00
	G2	G3	**1.24***	0.214	0.00
		G4	**1.03***	0.219	0.00
	G3	G4	-0.21	0.21	0.88
Playing computer	G1	G2	-0.27	0.185	0.60
		G3	-0.38	0.183	0.20
		G4	**-0.53***	0.184	0.03
	G2	G3	-0.11	0.193	0.99
		G4	0.25	0.195	0.72
	G3	G4	-0.15	0.192	0.97
Menstruation	G1	G2	0.01	0.005	0.9
		G3	**0.71***	0.034	0.00
		G4	**0.62***	0.036	0.00
	G2	G3	**0.70***	0.035	0.00
		G4	**0.62***	0.036	0.00
	G3	G4	-0.08	0.050	0.45

Legend: G1 - ≥16 years, 10th grade, practicing regularly PA; G2 - ≥16 years, 10th grade, not practicing regularly PA; G3 - ≤ 12 years, 6th grade, practicing regularly PA; G4 - ≤ 12 years, 6th grade, not practicing regularly PA; *the mean difference is significant at the 0.05 level in Tamhane Test

Regarding being already menstruated, as expected, the groups of younger adolescents, G3 (52.5%) and G4 (47.1%), are the ones with the largest values of not menstruating. All the older girls (except one girl in the G3) are menstruating.

Table 4 presents the results of ANOVA, obtained by the Tamhane test. With an error probability of 5% we can conclude that there are significant differences between groups on all study variables, except in

the difficulty in falling asleep variable.

In the perception of fatigue and exhaustion, we can observe that G1 has average values significantly lower than G3 and G4. The same is true of older adolescents and non-practitioners (G2) within G3 and G4. Among same age groups there are no significant differences. That is, the differences found in this behaviour differ in age of subjects and did not differ in the practice of PA.

Regarding the sedentary behaviour watching TV/DVD, it is observed that sedentary girls aged 16 and over (G2) watch it on average more hours than the younger ones from the same age group and that the younger group. Watching TV/DVD seems to be a more accomplished performance by G2 compared to other study groups (except G4 where there is no difference).

As for computer use, it appears that groups of older teens (G1 and G2) are those with higher values than the younger groups. It is to note that among groups of similar age, practitioners and non practitioners, there were no significant differences.

Playing computer games is an occupation that differs significantly only between G1 and G4 and the adolescents belonging to this group that have the highest average value.

Regarding to being menstruated, we found that exist differences between the older groups (G1 and G2) and the groups of younger adolescents (G3 and G4) and there were no differences between the same age groups. This situation was expected in the group of older adolescents (G1 and G2), since the vast majority were already menstruating, but it was quite interesting to see its consistency in the same group of younger girls (G3 and G4).

Discussion

The objectives of this research are to characterize the older adolescents (≥ 16 years) practicing a regular PA and identify the main differences when comparing them to girls not practicing PA and that have the same age or are younger.

In our study, no differences were found between groups with regard to the difficulty in falling asleep. Thus, all groups seem to have the same pattern of difficulty in falling asleep. These data differ from those presented by Gupta et al. [28] , who found that the hours of disturbance of sleep, particularly for girls, was inversely associated to daily PA. More specifically for each hour of sleep there was a decrease of 3% of daily PA. However, this indicator seems to enhance the data from Gaina et al., [19] which state that a very considerable part of youth (47.6%) often presents drowsiness, resulting from fewer hours of sleep due to various causes. It is extremely relevant to continue to study the variables related to sleep, given the significant associations with enjoying life, the adoption of healthy diets and the high likelihood of becoming obese [20]. Girls have the need to sleep more hours than boys (29), they also complain more and the number of hours of sleep seems to be related to overweight [16]. However, this association is not fully consensual [17].

Regarding the perception of fatigue and exhaustion, the groups of older adolescents (G1 and G2) have lower values compared to groups of younger adolescent girls. However, these values do not differ when establishing comparisons with the same age groups. The cause of this difference may be the greatest

diversity of activities undertaken by young people, including higher rates of daily physical practice [30]. For Findlay (22) 30% of adolescents report symptoms of fatigue that may be attributable to lifestyle and little time for sleep. It also seems clear that girls, in general, have more complaints related to health than boys [25] and contrary to what was identified in this study and, related to this symptom in particular, complaints tend to increase with age [31]. To ter Wolbeek et al. [24] younger girls were the ones with lower levels of fatigue.

As for the behaviour watching TV/DVD, the sedentary older adolescents (G2) have higher values when compared to both groups of practitioners (G1 and G3). No differences were found between the two sedentary groups (G2 and G4). Watching TV/DVD is the most common occupation of leisure among the youth population in both genders, both on weekdays and on weekends[32], with 40% of girls exceeding the recommendation of two hours watching TV/DVD [33]. Mota et al. [15] found that girls who did not do any physical activity in their leisure time reported significantly more time watching TV/DVD. However, the relationship between viewing TV/DVD and the practice of PA is not consensus in the literature, there are studies that confirm the negative association [34] and others that found no association [14]. However, Nelson and Gordon-Larsen [35] found that adolescents with a higher intake of hours of TV/DVD are less likely to have positive behaviours. Girls who watch TV/DVD 3 or more hours per day have a higher probability of being classified as overweight [36]

As for computer use the groups of young people aged 16 or over (G1 and G2) have higher values than average. It is noted that among the same age groups, differences were not significant. These differences in use according to age can be justified with a larger field of technology by older people, associated to the greatest need to make homework more elaborate and also with greater use of programs for communication between peers. However, a cross-sectional study of Pate et al. [37], conducted with girls, found that all sedentary activities decreased from 8th grade to 12th grade. However, investigations of Santos, Gomes and Mota [38] showed that an increase of computer usage time (from 1 hour to 2-3 h/day) was associated with a higher PA. The authors believe that the computer use is probably more related to the production of work, than used as a recreational instrument, such as television. The use of computer as a work tool may have a different value for the active behaviours. The female gender is spending more time daily to accomplish school tasks when compared to the male gender (39).

Playing computer games is an occupation which differs significantly only between G1 and G4 and the sedentary adolescents from the younger group (G4) that have the highest average value. Playing computer games is one of the least sedentary occupations held by teenagers and is predominantly performed by boys (11) spending about 60 minutes per day while the girls spend 23 minutes [12].

As for being menstruated, it was found that the differences lie only among the older groups (G1 and G2) and the younger groups (G3 and G4). This was expected given the age groups selected to form the groups, with almost all the older girls already menstruating. However, it was found that there are no differences between sedentary and active groups. The menarche implies profound changes in the development of adolescents. Menstruation alters some of the teenagers' behaviours, at least in early days. There is evidence that intensive training can lead to significantly delay the onset of menarche[40] and their associated problems[6]. The investigation by Taveras et al.[41] did not identify any relationship between the menarche and the practice of PA.

In conclusion, there were no differences between sedentary and practitioners in relation to menstrua-

tion and sleeping disturbs. Sedentary older girls watch more TV/DVD and sedentary younger ones play more computers. Older girls and sedentary ones are those spending more time using the computer. The perception of fatigue and exhaustion is greater in younger adolescent girls.

Among the 44 HBSC countries [27] Portugal has one of the lower frequency of physical activity practice during adolescence and the situation gets worst regarding girls in late adolescence. This fact is often associated with other physical and psychological perception of lack of well-being and health behaviours [26]. In order to reduce this public health problem, schools, local communities and health services must consider ways to reduce sedentary behavior especially concerning this target group, apparently more at a risk: female adolescents during late adolescence. The present work provide guidelines on how to address this vulnerability, in order to promote health and active life styles among adolescents, in this case girls. Addressing determinants of "not quitting" during childhood and early adolescence may health girls to keep active and health later.

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