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Adolescent lifestyle profiles and personal and community competences

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ABSTRACT

Revealing how health-related lifestyle behaviors are associated with competences during adolescence can contribute to understanding the complexity of factors that intervene in adolescents' health. The objectives of this study were to explore the clustering of different lifestyle behaviors and their connection to personal and community competence. Participants were 795 adolescents who were taking part in the initial assessment of a Spanish community-based intervention program. They were asked to complete four self-report measures: the Lifestyle Questionnaire, the Self-Concept and Social Realization Questionnaire, the Coping Scale for Children and Youth Questionnaire, and the Perceived Community Support Questionnaire. Cluster analysis was then used to discover different patterns of lifestyle behaviors and associate them with sociodemographic and competence factors. The cluster analysis revealed three groups of adolescents: a first group that presented all-round healthy habits, a second group with abusive screen use and a third group with unhealthy habits related to going out at night. These clusters were modulated by age, student status, psychosocial risk status and mothers' level of education. Further analysis showed higher levels of Self-worth, Task-oriented strategy, Empathy and Community participation in the Healthy group compared to those in the Unhealthy group, whereas the Screen-user group had more Behavioral avoidance than the Healthy group and less Community integration than both of the other groups. The identification of personal and community competences as health-promoting factors associated with adolescents' lifestyles may help professionals to prioritize certain strengths for best results in intervention programs.

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Health-related lifestyles comprise interacting patterns of health-related behaviours, orientations and resources adapted by groups of individuals in response to their social, cultural and economic environment (Abel, Cockerham, & Niemann, 2000). Adolescence is a relevant stage in which to study health-related lifestyles

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since the reiteration of different types of unhealthy behaviours can potentially jeopardize adolescents' development (Moreno et al., 2013). A main body of research regarding adolescent lifestyles has been aimed at focusing on problematic outcomes such as obesity or depression (Dos Santos, Hardman, Barros, Santos, & de Barros, 2015; Katzmarzyk et al., 2015; Kremer et al., 2014). However, less is to be found when referring to the identification of competences that underlie different lifestyle profiles in order to enable health promotion.

Adolescent lifestyles are shaped at a personal and also at a community level. At a personal level, lifestyles are the result of decisions made according to individual competences. At a community level, and especially during adolescence, lifestyles start to unfold in social and community environments, where opportunities for constructive leisure play an important role. This approach has been theoretically addressed in two models that incorporate a broad vision of adolescents' competences. According to the 'Positive Youth Development' perspective, different types of competences are necessary to enable an optimal passage to adulthood. These competences are known as the 'six C's': *competence*, as the positive view of one's actions in specific areas (social, academic, cognitive, health, and vocational); *confidence*, as an internal sense of overall positive self-worth and self-efficacy; *connection*, as positive bonds and exchanges with peers, family, school, and community institutions; *character*, as in having standards of behavior and respect for civic norms, a sense of right and wrong (morality), and integrity; *caring,* as a sense of sympathy and empathy for others; and *contribution,* as in giving or helping one's self, the family, the community and society's institutions (Benson, Scales, Hamilton, & Sesman, 2006; Zarrett & Lerner, 2008). According to the second model, all these competences are developmental assets that are often thought of as the 'building blocks' for healthy adolescent development (Search Institute, n.d.). An inventory of health-related development assets includes: at the *individual level*: social competence, resistance skills, commitment to learning, positive values, self-esteem and a sense of purpose; at the *community level*: family and friendship supportive networks, intergenerational solidarity, participation and community cohesion; at the *organizational* or *institutional level*: environmental resources for promoting physical, mental and social health, civic participation opportunities, and enhancing equity (Morgan & Ziglio, 2007). Despite the theoretical emphasis on personal and community competences, not many studies have empirically addressed both types of competences and how they can affect adolescent lifestyles.

The first aim of our study was to capture groups of individuals that are characterized by a given profile of health-related lifestyle behaviours, involving frequency of reading, computer use, watching television, going out at night and the hour returning home, smoking and drinking alcohol, getting drunk, practicing sport and doing physical activity. Our emphasis on the positive youth perspective, based on the reciprocal person-environment influences that regulate adaptive development, fosters an interest in person-centred (as compared to

variable-centred) approaches to the study of human development (Magnusson & Stattin, 2006). This approach has recently been used in different adolescent health-related studies such as the ANIBES or HELENA, carried out in Spain and throughout Europe. In the ANIBES study (Pérez-Rodrigo et al., 2015), two lifestyle groups were obtained: a first group with poor diet and low physical activity, also associated with a lower socioeconomic background; and a second group with higher levels of physical activity, a healthier diet, more sleep and less sedentary behaviours. In the HELENA study (Cuenca-García et al., 2013), five clusters were identified: Healthy diet and active, Healthy diet and academic success, Healthy diet and sedentary, Unhealthy diet and screen user, and Unhealthy diet and active.

As a second aim, we examined whether the lifestyle patterns obtained were characterized by differences in socio-demographic factors. According to previous research, we expected to obtain a healthier lifestyle pattern in younger adolescents, students, from a rural neighbourhood, who were not at risk and whose parents had higher education and more skilled jobs (Carrasco, 2004; Rodrigo et al., 2006).

Finally, for our third aim, we examined to what extent the lifestyle patterns were related with individual and community competences following the six Cs approach and the assets model described above (Benson et al., 2006; Morgan & Ziglio, 2007). The idea was to identify personal and community competences that may act as protective factors, build resilience and promote health during adolescence. At the individual/personal level, we evaluated Self-worth (confidence), Task-oriented strategy (competence), Empathy (caring), and four different coping strategies (competence): Assistance seeking, Cognitive-behavioural problem solving, Cognitive avoidance and Behavioural avoidance. At the community level, we analysed Community participation, described as the engagement in social activities and civic groups (contribution); and Community integration (connection), as a sense of belonging to one's community, feeling comfortable, well received, known and identified by the community. Community participation and integration have been positively associated with adolescent's psychosocial adjustment and well-being (Albanesi, Cicognani, & Zani, 2007; Pretty, Conroy, Dugay, Fowler, & Williams, 1996), also with Self-worth and Life satisfaction; and negatively associated with Loneliness and School violence (Martínez, Amador, Moreno, & Musitu, 2011). Both constructs have also been closely related in theoretical models (Chavis & Wandersman, 1990), yet limited attention has been drawn to the empirical study of the relationship between them. Some evidence has shown a positive correlation between both constructs, though mainly referring to adult or young adult population (Cicognani, Pirini, Keyes, & Joshanloo, 2008; Hughey, Speer, & Peterson, 1999).

In previous research, certain adolescent lifestyle behaviours have been related to specific competences, such as Self-worth and Attention capacity, which are positively related to physical activity (Haugen, Säfvenbom, & Ommundsen, 2011;

Vanhelst et al., 2015); or Anger management, where high levels of suppression/expression of anger have been related to alcohol consumption or less physical activity (Musante & Treiber, 2000). In the present study, rather than analysing single behaviours, we aimed to compare lifestyle profiles. As a novelty, we also studied community competences, as adolescents who have developed meaningful and positive relationships with other adults or peers in the community are less likely to use drugs and alcohol, less likely to drop out of high school, and less likely to be involved in criminal behaviour (Crooks, Chiodo, Thomas, & Hughes, 2010). Adolescents' greater autonomy and time spent outside home increases the importance that they give to neighbourhood environments, the access to resources and services, and their participation and collective efficacy; and this connection to others outside the family can potentially affect their health (Leventhal & Brooks-Gunn, 2009). The present study could enable us to examine what kinds of competences underlie certain patterns of lifestyles, identifying those that could be potential targets of health promotion interventions.

Methods

Participants

Participants were 795 adolescents with an average age of 14.4 (SD = 1.65) with a range from 11 to 18 years of age (52% boys and 48% girls). The majority were students (96%), and 52% of the sample lived in an urban area whereas the rest were from a rural area. Regarding participants' fathers, 52% had a low level of education (up to primary school), whereas 30% had finished secondary school and 18% had further education; 84% of fathers were employed and 70% had unskilled jobs. As to the mothers, 50% had a low level of education, 30% had completed secondary school and 20% had further studies. In addition, 53% were employed, of which 76% had un-skilled jobs and 24% were skilled workers. Primary caregivers of all participants gave informed consent and the procedures were approved by the Committee for Research Ethics and Animal Welfare at the University of La Laguna.

Adolescents were enrolled in the initial assessment of the community intervention program, *Building My Future* (in Spanish *Construyendo Mi Futuro* (Rodrigo & Máiquez, 2006) that has been taking place in thirty-two municipalities of the Autonomic Community Castilla y León, Spain, over the past five years and in which a total of 80 groups have taken part. This program is an out-of-school, community-based intervention aimed at promoting positive development, engaging at-risk and non at-risk adolescents into action projects that involve pro-social and leisure activities in which they are able to display multiple assets, make decisions, and achieve their project goals. According to the personal information profiles received from the municipality social workers, 29% of participants came from families with a psychosocial risk status, whereas the rest come from not-at-risk families from the same neighbourhoods.

Measures

Lifestyle inventory

The Lifestyle Inventory covered the following areas: reading, watching television, using the computer, going out at night, smoking, drinking alcohol, playing sports, and doing physical activity. We applied a short version of the Lifestyle Questionnaire (HBSC; Mendoza, Sagrera, & Batista-Foguet, 1994), which has been extensively used in the European Study on Health Behaviours in School-aged Children. We selected 15 items related to the personal health behaviours mentioned above, whereas family aspects were dismissed for not being the focus of this study. The items used were the following: amount of reading (1 *never* – 4 *every day* scale); amount of time watching television during the week and weekends (number of hours a day); amount of time using the computer during the week and weekends (number of hours a day); frequency of going out at night (1 *hardly ever* – 5 *nearly every night* scale), the hour returning home; frequency of smoking, drinking beer, wine and spirits (1 *never* – 5 *every day* scales); frequency of getting drunk (1 *never* – 5 *more than ten times* scale); frequency of drinking alcohol on weekends (1 *no drinks* – 5 *more than eight drinks* scale); frequency of playing sports and frequency of doing physical activities (1 *never* – 4 *every day* scales).

Self-concept and social realization questionnaire

The questionnaire covered three personal competence areas: Self-worth, Task-coping, and Empathy and social realization. We used an adapted version of the validated Self-Concept and Social Realization Questionnaire (in Spanish AURE; De Mendoza, Medina, & Hernández, 2005). The instrument has a total of 42 items forming three factors: (1) Self-worth ($\alpha = .90$), as the positive evaluation of one's personal qualities; (2) Task-oriented strategy ($\alpha = .88$), which includes the necessity to be efficient and to enjoy facing the challenges, activities or tasks that one is involved in; and (3) Empathy and Social realization ($\alpha = .89$), which involves the capacity to enjoy caring relationships, a positive attitude towards communication and collaboration with others, and concern about other people's problems. Each item is presented using Osgood's semantic differential scale where two affirmations are opposed and must be valued (e.g. *I feel good about myself*, 1 2 3 4 5, *I feel uncomfortable with myself*). In this case, someone who scores nearer to 1 will have a higher level of Self-worth, so scores were converted for easier interpretation.

Coping scale for children and youth

This instrument is a reduced version of the Coping Scale for Children and Youth (CSCY; Brodzinsky et al., 1992), which covers the adolescents' problem solving strategies. It is formed by a total of 29 items with 1 *never*, to 5 *always* scales. Before rating these items, adolescents were asked to describe a recent specific problem to have in mind while answering the rest of the questionnaire.

This instrument includes four factors: (1) Assistance seeking (α = .55), which involves interpersonal problem solving such as getting advice or sharing feelings with two sources of support: another person or a family member. Despite the low alpha value, we decided to maintain the factor because respondents may rely upon one or the other source, and yet in both cases there is assistance seeking. We take this into account when interpreting the results. (2) Cognitive-behavioural resolution (α = .72), such as making plans to solve problems and then following them, or thinking about the problem in a new way to minimize discomfort; (3) Cognitive avoidance (α = .81), involving putting the problem out of one's mind or trying to pretend that the problem did not happen; and (4) Behavioural avoidance (α = .63), consisting of reducing tension by indirect means such as avoiding people that remind you about the problem or displacing anger on to another person.

Perceived community support questionnaire

This questionnaire covered the participants' community competences. We applied two subscales of the Perceived Community Support Questionnaire (PCSQ; Gracia, Herrero, & Musitu, 2002), measured with a response scale going from 1 *strongly disagree*, to 5 *totally agree*. The two subscales were: (1) Community Participation (α = .64), formed by 6 items measuring the level of engagement in the community's social activities and civic groups, for example *I collaborate in my community's organizations*, and (2) Community Integration (α = .68), formed by 5 items, measuring the sense of belonging to a community or neighbourhood: feeling comfortable, well received, known and identified by the community. For example *I feel identified with my community*, *My opinions are well received in my community*.

Procedure

Self-reported questionnaires were handed out by the group monitors, as part of the initial evaluation, and filled in by adolescents participating in the program. Each set of questionnaires was sent by the municipal social workers to the University of La Laguna, where all material was collected and processed.

Plan of analyses

For the first aim, a hierarchical cluster analysis was performed on the lifestyle behaviour scores reported by the adolescents, using Ward's method, to examine whether it was possible to distinguish different patterns of lifestyle behaviours (Ward, 1963). All the variables in the Lifestyle Inventory were standardized to prevent the different scales from influencing the results of the analyses. Then, to examine whether these different patterns significantly differed in the lifestyle measures, a MANOVA was performed with the obtained cluster solution

as a predictor and the lifestyle behaviours as dependent variables. We then performed Chi square and ANOVA analyses to compare the clusters in terms of age, gender, student status, psychosocial risk status, place of residence, and parents' level of education and type of job. For the second aim, we used ANOVA to compare the clusters with respect to nine competence factors: Self-worth, Task-oriented strategy, Empathy, Assistance seeking, Cognitive-behavioural resolution, Cognitive avoidance, Behavioural avoidance, Community participation and Community integration. Post-hoc Tukey tests were also carried out. Data were analysed using SPSS-18 analytical software.

Results

Firstly, a three-cluster solution was chosen for the lifestyle behaviours, as the clusters were theoretically meaningful and represented the best possible balance between cluster size and differentiation. The hierarchical three-cluster solution was replicated using iterative partitioning method k-means, and the MANOVA showed that the three clusters significantly differed in lifestyle behaviours (Wilks' Lambda = .110, $F(30,792) = 104.61$, $p \leq .001$), with a large effect size ($\eta^2 = .67$). Clusters significantly differed in all variables with medium and large effect sizes (Cohen, 1988), as shown in Table 1.

Cluster 1 ($n = 380$) was labelled as the *Healthy* group, characterized by adolescents who read, do not watch television or use the computer frequently, don't go out many nights, and if so return early, do not smoke, drink alcohol or get drunk frequently, and who practice sports and physical activity. Cluster 2 ($n = 202$) was labelled as the *Screen-user* group, mainly characterized by adolescents who read less and consume large amounts of television and computer during the week and on weekends. Finally, Cluster 3 ($n = 213$) was labelled as the *Unhealthy* group, characterized by adolescents who do not watch large amounts of television or computer during the week or weekends, but go out many nights and return home late. They also smoke, drink alcohol and get drunk frequently, and do not practice as much sport or physical activity.

Secondly, the clusters were compared in terms of socio-demographic variables (Table 2). No gender differences were obtained, yet age differed significantly among groups ($F(2,773) = 121.60$, $p \leq .001$, $\eta^2 = .24$). The *Healthy* group was the youngest, followed by the *Screen-user* group, and finally the *Unhealthy* group was the eldest. There was an overrepresentation of full-time students in the *Healthy* and *Screen-user* groups, whereas in the *Unhealthy* group adolescents who were not students were overrepresented ($\chi^2(2) = 45.34$, $p \leq .001$). The *Unhealthy* group was overrepresented by at risk adolescents, whereas the *Screen-user* group had more non at-risk adolescents ($\chi^2(2) = 8.82$, $p \leq .05$). Other overrepresentations in the *Screen-user* group consisted of participants' mothers having university level education, whilst they were less represented in the *Healthy* group ($\chi^2(4) = 10.44$, $p \leq .05$).

Table 1. Centre of the final clusters and univariate contrast of variances between the clusters according to lifestyle behaviours ($n = 795$).

	1. Healthy ($n = 380$)	2. Screen-user ($n = 202$)	3. Unhealthy ($n = 213$)	$F(2,792)$	ES η^2	Post hoc contrasts		
Reading	0.09	−0.26	−0.04	8.30***	.02	1–2***		
TV (week)	−0.09	0.45	−0.12	24.09***	.06	2–3***	2–1***	
TV (weekend)	0.02	0.50	−0.41	50.61***	.11	2–3***	2–1***	1–3***
PC (week)	−0.29	0.71	−0.16	88.66***	.18	2–1***	2–3***	
PC (weekend)	−0.27	0.87	−0.32	144.07***	.27	2–1***	2–3***	
Going out at night	−0.37	0.14	0.60	77.22***	.16	3–1***	3–2***	2–1***
Hour returning home	−0.47	0.08	0.72	123.91***	.24	3–1***	3–2***	2–1***
Smoking	−0.51	−0.32	1.08	373.71***	.49	3–1***	3–2***	2–1**
Drinking beer	−0.64	0.10	1.05	365.27***	.48	3–1***	3–2***	2–1***
Drinking wine	−0.57	0.22	0.89	230.65***	.37	3–1***	3–2***	2–1***
Drinking spirits	−0.74	0.38	1.09	575.88***	.59	3–1***	3–2***	2–1***
Getting drunk	−0.63	0.07	1.17	470.46***	.54	3–1***	3–2***	2–1***
Glasses of alcohol (weekend)	−0.65	0.02	1.26	567.57***	.59	3–1***	3–2***	2–1***
Sport	0.17	−0.12	−0.19	11.07***	.03	1–3***	1–2**	
Physical activity	0.15	−0.06	−.018	7.83***	.02	1–3***		

**$p \leq .01$; ***$p \leq .001$.

Table 2. Participants' distribution in the lifestyle groups according to sociodemographic variables.

	1. Healthy *M*(SD) %	2. Screen-user *M*(SD) %	3. Unhealthy *M*(SD) %	F/χ^2	*p*
Age	13.65 (1.41)	14.54 (1.42)	15.59 (1.51)	121.60	.000***
Gender (female)	51.1	43.3	48.1	3.18	.204
Student status (in school)	99.2	98.5	88.7	45.34	.000***
Psychosocial risk status (at risk)	16.7	12.2	28.7	8.82	.012*
Place of residence (rural area)	51.8	43.3	42	4.91	.086
Father's education level				8.05	.090
No studies or primary level	52.5	47.2	54.5		
Secondary studies	32.7	26.4	29.5		
Senior high school or University level	14.7	26.4	16.1		
Mother's education level				10.44	.034*
No studies or primary level	53.9	43.5	48.3		
Secondary studies	30.9	27.5	32.5		
Senior high school or University level	15.2	29	19.2		
Father's type of job (unskilled)	73.1	62.9	70.4	5.75	.056
Mother's type of job (unskilled)	76	75	78.7	0.71	.700

*$p \leq .05$; ***$p \leq .001$.

Table 3. Means, standard deviations and univariate contrasts of variance between the lifestyle clusters according to personal and community competencies.

Competences	1. Healthy *M*(SD)	2. Screen-user *M*(SD)	3. Unhealthy *M*(SD)	*F* (2,791)	ES η^2	Post hoc contrast	
Self-worth	3.86 (.61)	3.73 (.60)	3.61 (.68)	11.26***	.07	1–3***	
Task-oriented strategy	3.79 (.72)	3.56 (.68)	3.35 (.68)	28.83	.13	1–3***	1–2***
						2–3***	
Empathy	4.09 (.69)	4.03 (.64)	3.94 (.74	3.38*	.03	1–3***	
Assistance seeking	3.03 (.95)	2.92 (.87)	2.85 (.86)	3.01	.01		
Problem resolution	2.89 (.76)	2.95 (.67)	2.91 (.67)	.46	.01		
Cognitive avoidance	2.75 (.73)	2.89 (.69)	2.77 (.76)	2.60	.01		
Behavioural avoidance	2.43 (.79)	2.59 (.70)	2.55 (.75)	3.94*	.04	2–1*	
Community participation	2.88 (.75)	2.74 (.73)	2.66 (.78)	7.12***	.06	1–3***	
Community integration	3.38 (.70)	3.17 (.68)	3.37 (.79)	6.78***	.06	1–2***	3–2**

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

Finally, in order to examine whether the identified lifestyle clusters were related to different competences, one-way analyses of variance (ANOVA) were calculated on participants' ratings in nine different competence factors, revealing significant differences in six factors with small, medium and large effect sizes (Table 3). Adolescents belonging to the *Healthy* group presented higher levels of Self-worth, Task-oriented strategy, Empathy, and Community participation than those in the *Unhealthy* group; as well as higher levels of Task-oriented strategy than those in the *Screen-user* group. Furthermore, participants in the *Screen-user* group presented a higher Task-oriented strategy than those in the *Unhealthy* group, yet more Behavioural avoidance than the *Healthy* group, and less Community integration than both of the other two groups.

Discussion

For our first aim, we have identified three lifestyle behaviour patterns demonstrating the co-occurrence of health-related behaviours within the adolescents. Almost half of the participants present a healthy lifestyle, whereas the remaining half is split into two groups with unhealthier lifestyles. Young adolescents who read more often, go out less at night, consume fewer legal drugs and exercise more characterize the *Healthy* group. This group is also overrepresented by mothers with less university level studies. Secondly, the *Screen-user* group stands out for computer use and consumption of large amounts of television, characterized by students with well-educated mothers and no psychosocial risk conditions. Lastly, the *Unhealthy* group involves older adolescents who go out very often, stay out later, consume alcohol and practice less exercise, overrepresented by families with a psychosocial risk status and non full time students.

As to our second aim, our hypotheses with respect to age, student status and psychosocial risk status were confirmed. As in previous research, younger adolescents who are still in school tend to present healthier habits than older adolescents (Carrasco, 2004). Likewise, adolescents whose at-risk families presumably accumulated various adversities, such as domestic violence and economic difficulties were more likely to engage in unhealthy behaviours (Masten & Powell, 2003; Rodrigo et al., 2006). Interestingly, significant gender differences were not obtained. The consumption of alcohol, smoking, and internet use are nowadays seen as normalized social behaviours and tend to be equally found in boys and girls (Hernando, Oliva, & Ángel Pertegal, 2013; Sánchez Pardo, 2002). The parents' type of job and their place of residence were not related to the lifestyle groups, suggesting that though some associations between socioeconomic status and health behaviours exist during adolescence, the associations are not as robust as those in adulthood (Hanson & Chen, 2007).

In relation to the Screen-user group, recent studies have also pointed out the emergence of this type of lifestyle among adolescents (Cuenca-García et al., 2013). The increasing access to information and communication

technology (ICT) in our society is having a great impact and researchers are discovering different problematic psychosocial outcomes related to the misuse of the Internet, bearing similarities with substance use, impulse control disorders, and obsessive-compulsive disorder (Salgado, Boubeta, Tobío, Mallou, & Couto, 2014). As identified in our research, this type of lifestyle is emerging in adolescents with well-educated mothers, who might be facilitating the access to tablets, smartphones and computers, increasing their risk of Internet misuse.

As to our third aim, significant differences were obtained among the lifestyle patterns regarding six of the nine competence factors analysed. The *Healthy* group was overrepresented by the youngest adolescents and presented higher levels of Self-worth as compared to the older *Unhealthy* group, reversing the typical trend showing that self-esteem increased during middle years (Jiménez, Oliva, & Sánchez-Queija, 2004). Another positive competence factor that resulted higher in the *Healthy* group as compared to the *Unhealthy* group was Empathy and social realization, also associated with Self-esteem and Tolerance of diversity (Lozano & Etxebarria, 2007).

The *Healthy* group also presented a higher level of Task-oriented strategy as compared to the *Unhealthy* group, in which adolescents develop a sense of purpose, strive to be efficient and enjoy facing the challenges, making efforts to approach, prepare and finish tasks. In a recent meta-analysis on adolescent lifestyle interventions evidence shows that intervening in physical activity has positive effects on working memory and executive functions, two cognitive aspects that are presumably involved in the task-oriented competence analysed in our study (Martin, Saunders, Shenkin, & Sproule, 2014). The way that adolescents cope with their tasks can also be related to the capacity of focusing and planning the future, identified in many studies as a protective factor in adolescents, especially those under risky circumstances (So, Voisin, Burnside, & Gaylord-Harden, 2016). We have also obtained that having a general task-oriented mindset distinguishes better between the *Healthy* and *Unhealthy* groups than using specific coping strategies such as Cognitive-behavioural problem solving and Cognitive avoidance where no differences were obtained. Therefore, the general disposition to face challenges and succeed in proposed actions (life skills) is more relevant for healthy lifestyles than the approaches taken in concrete problematic situations (problem solving skills).

The *Screen-user* group represents an interesting case in which to explore their competences, as it presented a lower level of Community integration than the other two groups. It seems that their excessive focus on technology could be leading to a sense of disconnection from their social environment, resulting in less commitment to the community. Notably, a higher level of Community integration was found in the *Healthy* and *Unhealthy* groups, though the former group was more active than the latter group in terms of Community participation. The Community integration construct measured in our study is referred to what Mcmillan and Chavis (1986) name as *Membership*, one of the different

dimensions of the Sense of Community construct. This membership or sense of belonging to the community, especially during adolescence, can be related to the feeling of being accepted in a group of peers. In the case of the *Healthy* group, peer acceptance depends on getting involved in healthy behaviours, whereas in the *Unhealthy* group, it depends on engaging in risky behaviours such as staying out later, smoking or drinking (Gardner & Steinberg, 2005), also seen as normalized social behaviours in today's society (Sánchez Pardo, 2002). However, the *Unhealthy* group presented a lower level of Community participation than the *Healthy* group. In this sense, opportunities for participation and self-determination, and the possibility of giving a contribution to community life, are essential for increasing psychological and social well being (Prilleltensky, Geoffrey, & Peirson, 2001). It could be the case that the subjective perception of what the community has to offer (e.g. the availability of services and support), could be of greater significance than the feelings of belonging when it comes to getting involved in risky behaviours (Elfassi, Braun-lewensohn, Krumer-nevo, & Sagy, 2016).

Another interesting finding is that Behavioural avoidance resulted higher in the *Screen-user* group than in the *Healthy* group. Adolescents who show an abusive screen use are more likely to avoid people and problems by watching TV or using the computer, and this could bring about other negative outcomes such as social isolation or detachment from reality and school tasks, as suggested by other studies on abusive screen use (Kim, LaRose, & Peng, 2009). Increasing their sense of belonging to the community is crucial in this group and should be taken into consideration when intervening and developing prevention policies (Brennan & Barnett, 2009).

We are aware of some limitations that this study presents related to the self-report nature of the measures applied to evaluate the lifestyles and the competence factors. The cross-sectional nature of the design does not allow causal inferences between competences and lifestyles. In addition, further studies should be carried out that include other lifestyle behaviours, such as eating and sleeping habits or more specific types of Internet misuse, as well as a more extensive testing of competences.

In conclusion, our study confirms the importance of a person-oriented approach to capture the patterns of behaviours associated with health-related lifestyles in a large sample of adolescents. The connection between lifestyle profiles and competence demonstrated in this study indicates that this is a promising approach that may have a great impact in the field of promotion programs. These programs should be especially targeted at young adolescents, around 13 years old or younger, who are still well protected by the family and school environment, aiming to maintain their healthier behaviours and prevent the transition to unhealthier lifestyles. Our results show that working on peer resistance, and the feeling of being accepted for getting involved in risky behaviours, could prevent that 'false' sense of integration and the negative personal

aspects that are associated (low Self-worth, Task-orientation and Empathy and social realization). Given that Community participation tends to decrease in the *Unhealthy* group with older adolescents, opportunities for engagement and participation in constructive leisure and prosocial activities must be strengthened, in order for competences to unfold and reduce unhealthy behaviours. In addition, prevention practices must not forget specific interventions for those adolescents who are misusing screens, informing on the pros and cons of screen use in combination with the previous actions.

Several preventive interventions that address intermediate risks in the family, school, peer, and individual have been tested in controlled trials and have shown significant reductions in health-related problem behaviours in children and adolescents (Catalano et al., 2012). However in regard to health promotion, a recent review from the WHO's Health Promoting School framework concluded that interventions were effective for improving certain health outcomes but not others, and few studies included any academic competence (Langford et al., 2014). Findings from our study suggest that one possible way to increase the effectiveness of promotion programs is to focus on the enhancement of the adolescents' health-related personal and community competences as possible key factors to foster healthier lifestyles as well as promoting positive development.

Disclosure statement

No potential conflict of interest was reported by the authors.

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