

The association of Self-concept with Substance Abuse and Problematic Use of Video Games in University Students: A Structural Equation Model

Relación entre autoconcepto, consumo de sustancias y uso problemático de videojuegos en universitarios: un modelo de ecuaciones estructurales

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Abstract

This study aims to define and contrast an explanatory model of consumption of alcohol, tobacco consumption, and problematic use of video games based on self-concept and its dimensions in a sample of university students. The research was conducted with a sample of 490 students from the province of Granada (Spain), aged between 20 and 29 years ($M = 22.80 \pm 3.63$), with a homogeneous distribution by gender. The instruments used were the Self-concept Form-5 Questionnaire (García & Musitu, 1999), the Alcohol Use Disorders Identification Test (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993), the Fagerström Test for Nicotine Dependence (Heatherton, Kozlowski, Frecker, & Fagerström, 1991) and the Questionnaire for Experiences Related to Video Games (Chamarro et al., 2014). A model of structural equations was estimated, which was adjusted properly, $\chi^2(8) = 19.843$, $p = .011$; CFI = .963, NFI = .943, IFI = .965, RMSEA = .055. As main results, a positive relationship between social and physical self-concept and consumption of alcohol was obtained, as well as a negative relationship between social self-concept and problematic use of videogames. Academic dimension was negatively related to alcohol and video game use. Furthermore, alcohol consumption was positively related to tobacco consumption and use of video games. It is concluded that levels of self-concept may represent a risk factor in substance abuse and digital leisure, and their study and consideration are appropriate.

Keywords: Self-concept; Video games; Alcohol; Tobacco; University.

Resumen

El presente estudio pretende definir y contrastar un modelo explicativo del consumo de alcohol, tabaco y uso problemático de videojuegos en función del autoconcepto y sus dimensiones en una muestra de estudiantes universitarios. Participaron 490 estudiantes de la provincia de Granada (España), con una edad comprendida entre los 20 y 29 años ($M = 22,80 \pm 3,63$) y una distribución homogénea según su sexo. Los instrumentos empleados fueron el Cuestionario de Autoconcepto Forma-5 (García y Musitu, 1999), Test para la Identificación de Trastornos en el Uso de Alcohol (Saunders, Aasland, Babor, De la Fuente y Grant, 1993), Test para la Dependencia a la Nicotina (Heatherton, Kozlowski, Frecker y Fagerström, 1991) y el Cuestionario de Experiencias Relacionadas con Videojuegos (Chamarro et al., 2014). Se llevó a cabo un modelo de ecuaciones estructurales que se ajustó de forma adecuada ($\chi^2 = 19,843$; $gl = 8$; $p = .011$; CFI = .963 NFI = .943; IFI = .965; RMSEA = .055). Los resultados revelan una relación positiva entre el autoconcepto social y físico con el consumo de alcohol, y negativa entre la dimensión social y el uso de videojuegos. La dimensión académica se relacionó negativamente con el consumo de alcohol y el uso de videojuegos. Asimismo, el consumo de alcohol se relacionó positivamente con el consumo de tabaco y el uso de videojuegos. Se concluye que los niveles de autoconcepto pueden representar un factor de riesgo en el consumo de sustancias y el ocio digital de pantalla, siendo conveniente su estudio y consideración.

Palabras clave: Autoconcepto; Videojuegos; Alcohol; Tabaco; Universidad.

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The university stage is the period during which young adults begin their higher studies in order to achieve professional degrees that will allow them to enter the work market (Martínez, Zurita, Castro, Chacón, Hinojo, & Espejo, 2016). This period represents a change in students' lifestyle and social relations, as many are forced to leave the family home, or begin working or living self-sufficiently (García-Laguna, García-Salamanca, Tapiero-Paipa, & Ramos, 2012). Likewise, this stage is the step from adolescence to adulthood at the social level, as some emancipation occurs when leaving the family nucleus and coming of age (Bewick, Koutsopoulou, Miles, Slaa, & Barkham, 2010; Martínez et al., 2016). Nevertheless, some personality changes that are inappropriate for adulthood may manifest, as the process of strengthening the personal identity that began in adolescence has not yet concluded (Haapanen & Tervo, 2012; Karpinski, Kirschner, Ozer, Mellott, & Ochwo, 2013). Young adults can present unstable behaviors because they are highly influenced by their peer group, besides not yet having the necessary mechanisms to deal with stressful situations produced by the academic and working world (Bewick et al., 2010; García-Laguna et al., 2012).

The use of legal drugs is very common and popular among university students (Mezquita, Stewart, Kuntsche, & Grant, 2016; Vaquero, Isorna, & Ruiz, 2012). Consumption of alcohol and tobacco, understood as the periodic ingestion of these substances that produces patterns of use and dependence, in addition to possible intoxications and diseases (Kobiella et al., 2014; Saunders, Aasland, Babor, De la Fuente, & Grant; 1993), increases significantly in this sector of the population, especially due to the absence of parental control, peer influence, and cognitive and contextual changes occurring at this stage (Armendáriz, Alonso, Alonso, López, Rodríguez, & Méndez, 2014). Consumption of alcohol can act as a means of socialization because its intake affects emotions and thinking and judgment processes, creating a phase of euphoria and excitement that makes it easier to establish social relations (Mezquita et al., 2016; Sánchez-SFosa, Villarreal-González, Ávila, Vera, Jiménez, & Musitu, 2014). In the case of tobacco, high levels of addiction are generated, produced by nicotine, which is a psychoactive drug that alters the emotional sphere and creates dependence (Kobiella et al., 2014; Palmer et al., 2013).

The use of these substances has been related to severely harmful effects for health. The harmful consumption of alcohol, besides producing more than three million deaths worldwide each year (WHO, 2015a), can be a causal factor of diseases and disorders such as anemia, various types of cancer, cirrhosis, and cardiovascular diseases or the loss of cerebral faculties (Maurage, Joassin, Speth, Modave, Philippot, & Campanella, 2012; Vaquero et al. 2012). The consumption of tobacco is related to a significant increase in

the likelihood of developing lung cancer, chronic obstructive pulmonary disease, or heart disease (Chacón, Castro, Caracuel, Padial, Collado, & Zurita, 2016), generating over six million deaths worldwide each year (WHO, 2015b). In this sense, it is essential not only to treat the consumption of these substances in youth, but to promote its prevention from different social levels.

Along with consumption of harmful substances, the pathological use of screen devices has increased in the 21st century, especially in the younger sectors of the population. The use of videogames as means of leisure has extended especially among adolescents and young adults, stages at which the social constraints of these devices decreases (Beltrán & Chamarro, 2016; Greenfield, 2014). Various studies have shown that the problematic use of videogames may be associated with negative physiological consequences, such as ocular pathology or hormonal changes; cognitive problems like depression or anxiety; or socio-emotional problems related to the loss of social skills (Anderson et al., 2010; Van Rooij, Schoenmakers, Vermulst, Van den Eijden, & Van de Mheen, 2010). In fact, the problematic use of videogames has been defined as their pathological use, involving unhealthy and even anti-social behaviors and affecting the players' psychosocial adaptation (Chamarro et al., 2014). This shows the importance of responsible consumption of digital screen leisure (Chacón, Zurita, Castro, Espejo, Martínez-Martínez, & Linares, 2016; Muros-Ruiz, Aragón-Carretero, & Bustos-Jiménez, 2013).

Considering the cognitive and social factors involved in young adulthood, together with the negative consequences derived from addictive-pathological behaviors in variables such as family functionality, academic achievement, life satisfaction, or aggressive behaviors, it is essential to study some of the cognitive processes that operate at this stage. Self-concept is understood by modern psychology as a mental image of what an individual thinks about him- or herself, made up of different factors (Bustos, Oliver, & Galiana, 2015; Greenwald & Famham, 2000; Hattie, 2014). Prior models have been developed that show how this construct includes five dimensions—social, emotional, physical, family, and academic—, attempting to contribute a more precise view of all the daily realities (García & Musitu, 1999; Shavelson, Hubner, & Stanton, 1976).

Various works have studied the self-concept at different stages with regard to several problems. In a study using structural equations, Zurita, Castro, Álvaro, Rodríguez, and Pérez (2016) developed a model to explain physical-healthy habits in adolescents as a function of self-concept, finding no statistical associations. Other authors have analyzed the relation between physical self-concept and the consumption of tobacco in Spanish youth, pointing out that non-smokers obtained higher scores in all the factors, especially in body image (Moreno, Moreno, & Cervelló, 2009). In a similar line, the self-concept has been shown to act as pre-

dictor of behaviors related to alcohol abuse in adolescents, observing a moderate relation between the two variables (Dudovít, Li, & Chung, 2013). This indicates the importance developing a healthy self-concept in young populations in order to prevent this problem. Lastly, various investigations have revealed that the use of different types of technologies is highly related to low levels of self-esteem and self-concept, emphasizing the importance of studying the relations between various cognitive factors and unhealthy habits such as substance consumption or the problematic use of videogames (Jackson, Von Eye, Fitzgerald, Zhao, & Witt, 2010; Portolés & González, 2015; Zurita et al., 2016).

On the basis of these antecedents, we contemplate the theoretical assumption that sustains this work through the following hypothetical model (Figure 1) with the following factors; Factor 1: academic self-concept (Acad-SF), Factor 2: Social self-concept (Soc-SF); Factor 3: Family self-concept (Fam-SF), Factor 4: Physical self-concept (Phy-SF), Factor 5: Emotional self-concept (Emo-SF), Factor 6: Problematic use of Videogames (Videogames), Factor 7: Alcohol Consumption (Alcohol) and Factor 8: Consumption of Tobacco (Tobacco).

In the model developed, we aimed to confirm the relation between all the self-concept dimensions and alcohol consumption because various studies report high consumption of alcohol during the university stage, and that its ingestion may be determined by specific psychosocial factors (Mezquita et al., 2016; Murray, Farrington, & Sekol, 2012). Likewise, we aimed to confirm the association

of Acad-SF, Phy-SF, and Soc-SF with the problematic use of videogames, as the latter has been shown to have a negative effect on academic achievement, health status, and social skills (Gentile et al., 2011; Greenfield, 2014; Primack et al., 2012). Nevertheless, we eliminated the relation with Emo-SF and Fam-SF because, at the university stage, young adults leave the family nucleus, and parental control decreases significantly (Bewick et al., 2010). It is also appropriate to eliminate the less significant relations, provided that the fit indices of the model are not affected, in order to obtain a synthesized and parsimonious model (Marsh, 2007). Likewise, we deleted the relation between Acad-SF and Phy-SF and tobacco consumption, as the widespread smoking occurring at this stage means that it does not exert much influence on academic achievement or sports practice (Chacón et al., 2016; Murray et al., 2012).

Acad-SF, Soc-SF, and Fam-SF are considered exogenous variables in the model, whereas Phy-SF and Emo-SF, as well as alcohol and tobacco consumption and the problematic use of videogames, are considered endogenous variables. The bi-directional arrows (covariances) relate the exogenous variables, whereas the uni-directional arrows show the effects (direct and indirect) among the endogenous variables employed. Terms of prediction error are associated with the endogenous variables, which receive the effect of other variables and require error variables. Parameter estimation was carried out through the maximum likelihood (ML) method because it is coherent, unbiased, and invariant to the type of scale.

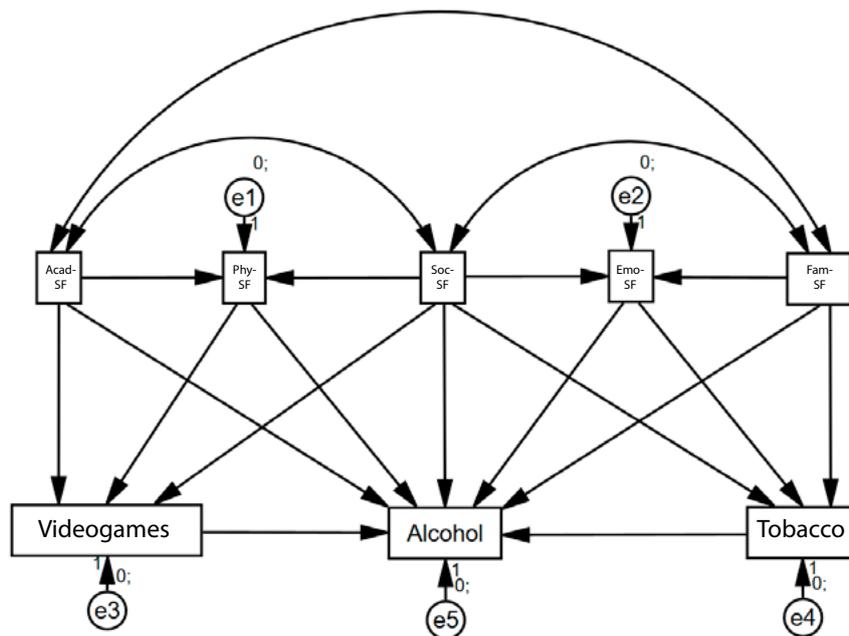


Figure 1. Hypothetical model of substance abuse and problematic use of videogames and their relation to the AF-5.

Note. Acad-SF: academic self-concept; Phy-SF : Physical self-concept; Soc-SF: Social self-concept; Emo-SF: Emotional self-concept; Fam-SF: Family self-concept. AF-5: Cuestionario Autoconcepto Forma-5 [AF-5; Self-concept Questionnaire Form-5]..

Thus, this study poses the following goals: (a) to establish and analyze the relations between the different dimensions of self-concept, the variables associated with harmful substance consumption (alcohol and tobacco), and those related to the problematic use of videogames; (b) to define and contrast an explanatory model of pathological and abusive behaviors as a function of self-concept and its dimensions in Spanish university students; c) to analyze the effect of self-concept on alcohol and tobacco consumption and on the problematic use of videogames based on the explanatory model constructed.

Material and method

Design and participants

This is a descriptive, exploratory, and cross-sectional study carried out with a sample of 490 university students of Educational Sciences of Granada (Spain), of whom 66.5% ($n = 326$) came from public centers and 33.5% ($n = 164$) from private centers. Of the sample, 60.6% ($n = 297$) were females and 39.4% ($n = 193$) were males, aged between 20 and 29 years ($M = 22.80 \pm 3.63$). Out of the total of 676 students enrolled in the academic year 2014/2015 (data provided by the University of Granada), we obtained a representative sample of 490 university students (sampling error of 0.02, CI = 95.5%) using stratified random sampling techniques.

Instruments

Questionario Autoconcepto Forma-5 [AF-5; Self-concept Questionnaire Form-5]. This instrument was designed by García and Musitu (1999) and is based on the theoretical model of Shavelson et al. (1976). It is made up of 30 items that are rated on a 5-point Likert-type scale ranging from 1 (*Never*) to 5 (*Always*). Self-concept is grouped into five dimensions according to this instrument: academic self-concept (Items 1, 6, 11, 16, 21, and 26), social self-concept (Items 2, 7, 12, 17, 22, and 27), emotional self-concept (Items 3, 8, 13, 18, 23, and 28), family self-concept (Items 4, 9, 14, 19, 24, and 29), and physical self-concept (Items 5, 10, 15, 20, 25, and 30). In the study of Garcia and Musitu (1999), a reliability (Cronbach's alpha coefficient) of $\alpha = .810$ was established, a value similar to that detected in this work ($\alpha = .787$).

Tobacco Consumption Scale, extracted from the Fagerström Test for Nicotine Dependence (FTND), which was developed by Heatherton, Kozlowski, Frecker, and Fagerström (1991) and translated to Spanish by Villareal-Gonzalez (2009). This instrument measures the number of cigarettes smoked by adolescents, their urge to smoke, and their nicotine dependency. It comprises 6 items, 4 dichotomic ones (0 = *No*, 1 = *Yes*), and 2 items rated on a 3-point Likert-type scale. The reliability of the instrument in this study was $\alpha = .960$, virtually identical to that obtained by Villareal-González (2009) in the original work ($\alpha = .970$).

Alcohol Consumption Scale, extracted from the instrument Alcohol Use Disorders Identification Test (AUDIT). This was developed by Saunders et al. (1993) and translated to Spanish by Rubio (1998). It includes 10 items, the first 8 items rated on a 5-point Likert-type scale ranging from 0 (*Never*) to 5 (*Daily*). The last two questions are rated on a 3-point Likert-type scale (0, 2, and 4). The score is calculated by a sum that ranges from 0 to 40 points and specifies dimensions by factors. In the original study, Rubio obtained a reliability of $\alpha = .800$, whereas in the present investigation, it was $\alpha = .767$.

Cuestionario de Experiencias Relacionadas con Videojuegos (CERV [Questionnaire of Experiences related to Videogames]), which was validated by Chamorro et al. (2014) in adolescents. The test is made up of 17 items with a negative connotation, which are rated on a 4-point Likert scale ranging from 1 (*Almost Never*) to 4 (*Almost always*). This instrument appraises the problematic use of videogames by means of a sum. The reliability of this instrument in this study was $\alpha = .890$, higher than the coefficient obtained by Chamorro et al. in the original study ($\alpha = .870$).

Procedure

Firstly, we requested the collaboration of the participants through an informative letter from the Physical Area of the University of Granada. In this letter, the nature and goals of the study were described, and participants' consent was requested.

Subsequently, the data was collected. A total 528 university students took part in the study but, as 38 incomplete questionnaires were eliminated, the final sample included 490 participants. The instruments were applied during school hours in the described center with no incidences. The investigators were present to ensure the correct application of the instruments.

We ensured the anonymity of all the students, who participated voluntarily, respecting the Helsinki Declaration of Ethics in Research. The Research Ethics Committee of the University of Granada approved the study.

Data Analysis

We used the statistical software IBM SPSS® version 22.0 of Windows to carry out the basic descriptive statistical analyses (means and frequencies). We employed the IBM AMOS® 23 program to analyze the relations and effects between the constructs of the estimated structural model. For this purpose, we calculated a path analysis model with the following observable variables: Acad-SF, Phys-SF, Soc-SF, SE, Fam-SF, Videogames, Alcohol and Tobacco.

The fit of the model was tested to verify its compatibility with the empirical data obtained. The reliability of the fit was calculated with the following goodness-of-fit criteria (Marsh, 2007, p. 785). In the case of the chi-square, non-significant values associated with p indicate a good fit of

the model. The value of the comparative fit index (CFI) is acceptable at values higher than .90, and excellent at values higher than .95. The normed fit index (NFI) should be higher than .90. The value of the incremental fit index (IFI) is acceptable at values higher than .90 and excellent at values higher than .95. Lastly, the value of the root mean square error of approximation (RMSEA) is excellent at values below .05 and acceptable at values lower than .08.

Results

The values obtained in the assessment of the fit of the model indicated a good fit in all the indices. The chi-square was significant, $\chi^2(8) = 19.843$, $p = .011$, although it should be noted that this statistic, as an index, has no upper limit. Also, it cannot be interpreted uniformly, and its sensitivity to sample size poses a problem. Therefore, other standardized fit indices that are less sensitive to sample size are used. The CFI had a value of .963, which is excellent. The NFI and the IFI had values of .943 and .965, respectively, which are also appropriate. Lastly, the RMSEA obtained an acceptable value of .055.

Figure 2 presents the estimated values of the parameters. Their magnitude should be adequate and the effects should be significantly different from zero. Inappropriate estimates such as negative variances should not appear.

Table 1 shows the statistically significant relations at the level of .001 between most variables, except for five.

The weights with higher regression indices correspond to the relation between Soc-SF and Fam-SF, between Soc-SF and Emo-SF, and between Soc-SF and Acad-SF, were positive and direct. Likewise, we observed a positive relation between Tobacco and Alcohol and a negative association between Acad-SF and Alcohol. Although they had lower regression weights, statistically significant inverse relations were obtained between Videogames and Acad-SF and Soc-SF. We also observed a positive and direct relation between Phy-SF and the Videogames, between Soc-SF and Alcohol, and between Videogames and Alcohol. In the case of non-statistically significant relations, the critical ratio (CR) was lower than 2; values higher than 2 of this coefficient indicated that the parameter is different from 0 at the statistically significant level of .001 (Byrne, 2013). Therefore, it can be stated that the scales used in the mentioned variables do not possess convergent validity.

Discussion

This study analyzes the model of self-concept made up of five dimensions—academic, physical, social, emotional and family (Fuentes, García, Gracia, & Lila, 2011)—in university students, as well as its relation with the problematic use of alcohol, tobacco, and videogames. The proposed structural model has adequate fit, confirming many of the results obtained in similar investigations at the national and international level in recent years (Bustos et al., 2015;

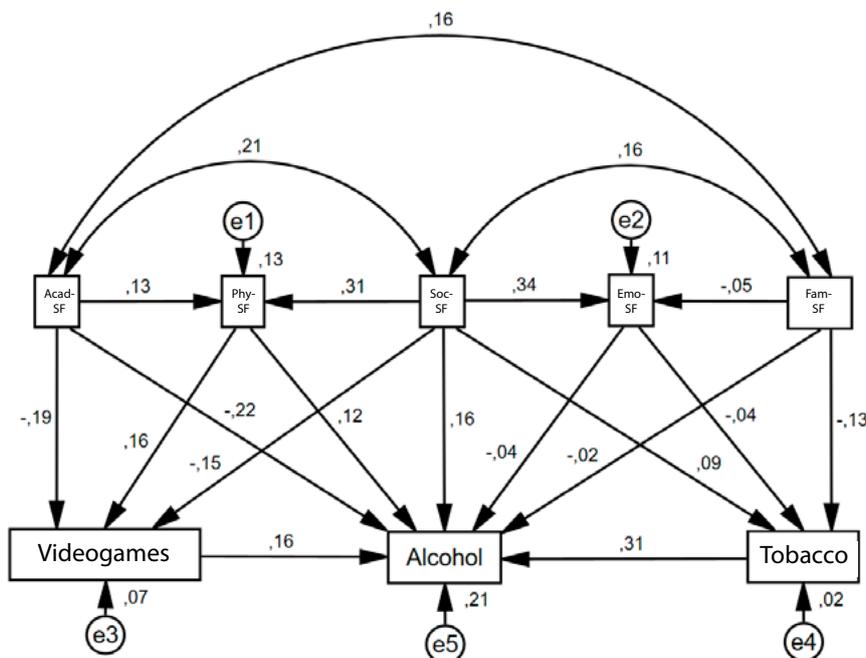


Figure 2. Structural equation model.

Note. Acad-SF: academic self-concept; Phy-SF: Physical self-concept; Soc-SF: Social self-concept; Emo-SF: Emotional self-concept; Fam-SF: Family self-concept.

Table 1. Regression Weights and Standardized Regression Weights.

Relations between Variables			Regression Weights				Standardized Regression Weights
			Estimates	W.E.	CR	P	Estimates
Fam-SF	↔	Acad-SF	.032	.009	3.405	***	.156
Acad-SF	↔	Soc-SF	.068	.015	4.544	***	.210
Fam-SF	↔	Soc-SF	.038	.011	3.565	***	.163
Emo-SF	←	Fam-SF	-.080	.068	-1.184	.237	-.051
Phy-SF	←	Soc-SF	.367	.051	7.191	***	.310
Emo-SF	←	Soc-SF	.339	.043	7.860	***	.339
Phy-SF	←	Acad-SF	.172	.057	3.018	***	.130
Videogames	←	Acad-SF	-.128	.031	-4.154	***	-.187
Tobacco	←	Fam-SF	-.204	.070	-2.902	***	-.132
Videogames	←	Phy-SF	.084	.024	3.454	***	.162
Videogames	←	Soc-SF	-.094	.029	-3.254	***	-.153
Tobacco	←	Soc-SF	.091	.047	1.929	.054	.093
Tobacco	←	Emo-SF	-.039	.047	-.842	.400	-.040
Alcohol	←	Phy-SF	.070	.025	2.792	***	.122
Alcohol	←	Soc-SF	.112	.032	3.522	***	.164
Alcohol	←	Emo-SF	-.026	.029	-.893	.372	-.038
Alcohol	←	Fam-SF	-.021	.045	-.473	.636	-.020
Alcohol	←	Tobacco	.213	.028	7.554	***	.307
Alcohol	←	Videogames	.179	.046	3.866	***	.161
Alcohol	←	Acad-SF	-.164	.032	-5.072	***	-.215

Note. Acad-SF: academic self-concept; Phy-SF: Physical self-concept; Soc-SF: Social self-concept; Emo-SF: Emotional self-concept; Fam-SF: Family self-concept.
*** $p < .001$.

Dudovitz et al., 2013; Jackson et al., 2010; McKay, Sumnall, Cole, & Percy, 2012; Zurita et al., 2016).

The main result derived from our model is the fact that all the dimensions of self-concept are related to each other except for Fam-SF and Emo-SF. Various studies obtain opposite results, as they show that Emo-SF is highly associated with Fam-SF at all ages (Bustos et al., 2015; Rodríguez-Fernández, Droguett, & Revuelta, 2012). Nevertheless, this absence of relation can be determined by the decrease undergone by the family component during the university stage, because the individual may not only reside outside of the family home, but also may start a new stage that grants greater social and emotional independence (Fuentes, García, Gracia, & Lila, 2012; Haapanen & Tervo, 2012; Martínez et al., 2016).

Analyzing the relations between self-concept and the studied habits, a negative relation is found between Acad-SF and Soc-SF and problematic use of videogames. The high use of screen devices can generate low levels of self-esteem, self-concept and poor academic achievement, although it has been shown that high use of mobile phones is positively related to Soc-SF (Jackson et al., 2010; McKay et al., 2012). Likewise, the literature shows that youths who use videogames excessively have poor social skills and interpersonal relationships, this interferes with

their daily activities, or they have cognitive problems that require specific psychological intervention (Hattie, 2014; Unsworth, Redick, McMillan, Hambrik, Kane, & Engle, 2015).

On another hand, Phy-SF reveals a positive relation with problematic use of videogames. These results may be due to the high percentages of the practice of physical-sports at this stage (Teixeira, Carraça, Markland, Silva, & Ryan, 2012). However, these results may be contradictory because it has been shown that sedentary digital leisure is related to weight and health problems, and therefore, to a poorer physical self-concept (Lu, Kharrazi, Gharghabi, & Thompson; 2013; Moreno et al., 2009; Zurita et al., 2016).

Tobacco consumption was negatively related to Fam-SF. The negative effects of tobacco consumption are well known (Chacón et al., 2016; WHO, 2015b), so the family may reject its consumption in young university students by constituting a social organization that establishes behavior and personality patterns (Martínez et al., 2016; Mezquita et al., 2016). This would explain why the university students who consume the most tobacco have a poorer Fam-SF. Consumption of tobacco may also have an inverse relation with different cognitive factors such as the capacity of self-regulation and levels dependence (Murray, Durazzo, Mon, Schmidt, & Meyerhoff, 2015).

In a similar line, the association between alcohol consumption and self-concept reveals positive relations with the physical and social dimensions, and negative relations with the academic dimension. In fact, social aspects like vivacity and conformity can act as enhancers of substance consumption, explaining the relation direct between Soc-SF and alcohol consumption (Mezquita et al., 2016). It is also known that polydrug consumption may be associated with low academic achievement and early dropout from school (Kelly, Chan, Mason, & Williams, 2015). This is because ingestion of harmful substances is associated with situations of family dysfunctionality, peer influence, and indiscipline in the educational processes (Almendáriz et al., 2014; Maurage et al., 2012), confirming the findings obtained in relation to alcohol consumption and Acad-SF.

Lastly, alcohol consumption is directly and strongly related to tobacco consumption and the problematic use of videogames. Various investigations reveal that youth who drink excessively also smoke more because the two drugs can act as bridge substances (Chacón et al., 2016; Murray et al., 2015). A similar situation may occur in alcohol consumption and problematic use of videogames, especially due to the addictive-pathological factors of avoidance and escape, socialization, or low self-esteem (McKay et al., 2012; Palmer et al., 2013; Van Rooij et al., 2010).

This study has some limitations that should be addressed. The first is related to the descriptive and cross-sectional design of the study, which does not allow establishing cause-effect relations between the variables, although it is easier to analyze the status of a concrete sample. Likewise, the fact that we did not differentiate the studied relations as a function of sex is another important limitation, as its effect could go unnoticed. Lastly, it would have been of interest to expand the spectrum of variables that are related to healthy behaviors at the university stage, including the level of adherence the Mediterranean diet, the practice physical-sport, or motivational factors such as the perceived motivational climate toward sport.

As the main conclusions, we note that the structural model had an adequate fit and good reliability. In this sense, it generates a broad perspective of substance consumption and the problematic use of videogames in university students, relating them to the five dimensions of self-concept. We obtained positive relations between Soc-SF and Phy-SF and alcohol consumption, and negative relations between Soc-SF and the use of videogames. The academic dimension of self-concept is negatively related to alcohol consumption and the problematic use of videogames. Likewise, the problematic use of videogames and tobacco consumption is directly related to alcohol consumption. Accordingly, youth's self-concept can act as a risk factor for substance consumption and the abuse of videogames, and it would be relevant to consider treatment of this problem.

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Conflict of interest

The authors of the present work declare that there is no conflict of interest.

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