The Spanish Journal of Psychology (2020), **23**, e32, 1–10.

doi:10.1017/SJP.2020.22

CAMBRIDGE UNIVERSITY PRESS

Validation of a Portuguese Version of the Aspiration Index for Adolescents (AI)

Mónica Costa[1], **Paula Mena Matos**[1] **and Catarina Pinheiro Mota**[2]

[1] *Universidade do Porto (Portugal)*
[2] *Universidade de Trás-os-Montes e Alto Douro (Portugal)*

Abstract. Intrinsic and extrinsic types of motivation have been widely studied, and their importance on both developmental and educational practices has led to the development of assessment tools. The Aspiration Index scale (AI; Grouzet et al., 2005), which was developed to measure people`s life aspirations, was translated and validated into Portuguese. A sample of 1,359 adolescents, age ranged from 12 to 18 years-old, participated in the present study. Results showed that a factor structure with the eleven subscales of the AI does not fit the data. However we gathered support for a three-factor structure that organized the items in terms of whether aspirations are intrinsically, extrinsically or self-transcendent oriented. Internal consistency and temporal stability yielded good results. The predictive and criterion validities were demonstrated by significant associations with theoretically supported measures of satisfaction with life and father and mother attachment. The multi-group confirmatory factor analysis showed that this structure was invariant across gender. These results suggest that the AI is a reliable measure to assess different types of life aspirations and can be used in future research with adolescents in Portugal.

Received 1 May 2019; Revised 13 May 2020; Accepted 13 May 2020

Keywords: aspirations, extrinsic, intrinsic, psychometric analysis, self-determination

Most contemporary theories of motivation propose that human beings tend to initiate and persist at behaviors to the extent that they believe the behaviors will lead to desired outcomes or aspirations (Deci & Ryan, 2012). Empirical evidence began to accumulate showing that aspirations is an important aspect of human`s life that help determine people`s meaning of life (e.g., Deci & Ryan, 2012). Aspirations refer to people's life goals, i.e, personal goals that people view as important in life (Kasser, 2002; Kasser & Ryan, 1993). Aspirations reflect not what people think they will achieve, but what would like to achieve. Aspirations have been underlined as an important factor in the regulation of behavior and integration of personality, i.e., in the determination of multiple behavioral and emotional outcomes (e.g., Deci & Ryan, 2012). Furthermore, aspirations and higher levels of self-determined motivation are related to several positive outcomes, such as well-being (Rijavec et al., 2011; Romero et al., 2012), health (Deci & Ryan, 2008), education/academic achievement (e.g., Niemiec & Ryan, 2009; Reeve, 2002; Ryan & Deci, 2000), regulation of behavior and integration of personality (e.g. Little et al., 2007), and optimal relational functioning (Knee et al., 2002). According to self-determination theory, aspirations reflect people needs, desires, awareness of those needs, and the consequent authenticity of choices and behaviors that are congruent with one's needs. Thus, individuals` actions and behaviors are relatively autonomous, freely chosen in order to reach their aspirations and expectations (Deci & Ryan, 2000, 2008). Aspirations research has refined the measurement of the construct and has illustrated the importance of aspirations in understanding human life. The Aspiration Index is a self-report scale broadly used to assess aspirations of life. The main goal of this study is to validate the Portuguese version of the Aspiration Index, AI, for adolescents (Grouzet et al., 2005).

Some lines of investigation have been focused not only on how aspirations are established and achieved but also on the type of aspirations that people pursue. Self-Determination Theory proposes differentiation between intrinsic and extrinsic aspirations (Deci & Ryan, 2012). Intrinsic goals are defined as a natural tendency to pursue own interests and overcome challenges (Reeve, 2002), and include self-acceptance, affiliation, community feeling, and physical health (Deci & Ryan, 2012). Studies showed that intrinsic goals are associated with a higher likelihood of positive outcomes, such as, positive emotions and self-esteem

Correspondence concerning this article should be addressed to Catarina Pinheiro Mota. Universidade de Trás-os-Montes e Alto Douro. Departamento de Educação e Psicologia. Vila Real (Portugal).
E-mail: catppmota@utad.pt

How to cite this article:
Costa, M., Matos, P. M., & Mota, C. P. (2020). Validation of a portuguese version of the aspiration index for adolescents (AI). *The Spanish Journal of Psychology, 23.* e32. Doi:10.1017/SJP.2020.22

(e.g., Kasser, 2002), well-being and positive mental health indicators (Kasser & Ryan, 1993) and less vulnerability to feelings of despair, to sense of failure, and to helplessness (Reeve, 2002). Also, individuals high in intrinsic aspirations treat their mistakes or failures as valuable experiences and opportunities to learn (Simons et al, 2000). Furthermore, intrinsic goals are inherently rewarding, because they directly satisfy innate basic psychological needs as regards to autonomy, competence and relatedness (Deci & Ryan, 2012; Kasser, 2002). Intrinsic aspirations have been also associated with beneficial relationship outcomes. Studies have revealed that intrinsic aspirations are associated with more positive, open and authentic social interaction and less use of strategies that defend self-esteem (La Guardia & Patrick, 2008). Regarding the link with attachment, studies suggested that maternal responsiveness was associated with the development of intrinsic goals (e.g., personal growth) and that intrinsic aspirations were predicted by attachment security (La Guardia et al., 2000).

By contrast extrinsic motivation involves obtaining reward or social praise, such as a positive evaluation from others (Deci & Ryan, 2012), and includes goals such as financial success, image and popularity. Research showed that extrinsic goals do not directly satisfy basic psychological needs, i.e, people with strong extrinsic aspirations have more difficulty fulfilling their needs for competence, relatedness, and autonomy (e.g., Kasser, 2002). Extrinsic aspirations are highly related with the opinion of others and individuals are more likely to engage in stressful interpersonal comparisons (Patrick et al, 2004). Thus, the consequences can be negative for development in general and for well-being and satisfaction in life in particular (Deci & Ryan, 2012).

Adolescence is marked by a period of exploration, self-discovery and beginning of decision-making regarding future goals and life aspirations (La Guardia & Ryan, 2002). Differently from adulthood, adolescents are confronted with a number of choices and alternatives. Their increasing self-awareness lead them to select life aspirations and goals, determine strategies to achieve them and evaluate the results of their own efforts (Croll et al., 2010; Deci & Ryan, 2012; Massey et al., 2008).

Despite empirical evidence showing that aspirations are an important aspect of human`s life that help determine people`s meaning of life, studies that address these aspects in adolescents in Portugal are still scarce. One reason for this is the lack of valid and reliable instruments. The Purpose in Life Test (PIL) (Crumbaugh & Maholick, 1969) assess the purpose and life meaning and it was validated for Portuguese participants from Peralta and Silva (2003). However, the use of the PIL on early adolescents can be problematic. Some items are too abstract and can be beyond the lived experience of early adolescents, such as, reason for existence, death and the clarity of life goals (Bering & Bjorklund, 2004). Furthermore, this measure does not allow assessing different goals that people pursuit in life and goal content distinctions concerning the differentiation between intrinsic and extrinsic aspirations. Therefore we choose another scale with acceptable psychometric properties, especially because we wanted to examine the purposes/goals in life among early adolescents. The Aspiration Index (AI) is a widely used screening tool to assess adults' aspirations developed by Grouzet et al. (2005) and developed for research based on self-determination theory. The first version was developed by Kasser and Ryan (1993) to measure 7 different goals domains, namely: Financial success, image, popularity, self-acceptance, affiliation, community feeling and physical health, assessing how important each goal is. However, this earlier version was incomplete and did not represent other the aims for which people strive in life. In this sense, four other goals subscales were developed by Grouzet et al. (2005): Conformity, safety, hedonism and spirituality to represent a more complete taxonomy of the aspirations that people pursuit in life. The structure of the Aspiration Index was estimated for a cross-cultural sample in a group of 1854 undergraduates from 15 cultures around the world, namely Australia, Bulgaria, Canada, China - Beijing, China – Hong Kong, Colombia, Dominican Republic, Egypt, France, Germany, India, Romania, South Korea, Spain and United States (Grouzet et al., 2005). The results confirm that the 11 types of goals were consistently organized in a circumplex fashion across the 15 cultures. The circumplex combined the variations within intrinsic versus extrinsic and self-transcendent versus physical. Thus, spirituality and hedonism aspirations none could be classified as typically intrinsic or extrinsic. Intrinsic aspirations include: Self-acceptance, affiliation, community feeling, and physical health; safety goals also clustered here, in line with predictions derived from Maslovian theory (Maslow, 1954). Extrinsically aspirations involved: financial success, image and popularity; conformity was also added to this list, as predicted by Kasser (2002). Self-transcendent dimension involves spirituality and physical dimension includes hedonism. As such, spirituality and hedonism represent a self-transcendent and physical dimension of aspirations, respectively (Grouzet et al., 2005). According to literature neither self-transcendent nor physical aspirations were as strongly consistent within themselves as were intrinsic and extrinsic aspirations (Grouzet et al., 2005). The confirmatory factor analysis revealed acceptable fit indices $\chi^2(979) = 4{,}643.93$, $p < .001$; CFI = .87; SRMR = .050; RMSEA = .045. The results also showed that the model was invariant for each subscale across the 15 samples exclude of the community feeling, hedonism and

popularity, that were not tested. Regarding internal consistency results demonstrated acceptable levels of internal consistency with Cronbach's alphas ranging from .67 to .90.

This structure was also tested for the Brazilian youth aged from 18 to 30 years old. The confirmatory factor analysis revealed good fit indices $\chi^2(978) = 3{,}318.64$, $p < .001$; CFI = .95; RMSEA = .053; TLI = .95. The internal consistency of the subscales ranged from .57 to .94. Results also showed that the model was invariant across different socio-economic groups (Núñez-Rodriguez, de Souza, & Koller, 2016).

Although the AI is broadly used to assess aspirations of life, there is, to the best of our knowledge, no validation study for use with adolescents in Portugal. The main objective of this study was to investigate the psychometric characteristics of the Portuguese version of the Aspiration Index (i.e. construct validity, reliability, measure invariance across gender) in a sample of adolescents.

Method

Participants

The sample comprised 1,359 adolescents, girls (n = 759) and boys (n = 600), aged 12 to 18 (M = 15.27 years, SD = 1.56) from public schools (from 7th grade to secondary students). In reference to the participants' schooling, 437 (32.2 %) adolescents were from 7th to 9th grade, while 922 (67.8 %) were in secondary school (10th to 12th grade). The sample included adolescents from North and Center of Portugal. All participants were native and fluent Portuguese speakers.

At Time 2, 264 adolescents, girls (n = 150) and boys (n = 114), aged 12 to 18 (M = 15.81 years, SD = 1.49) were retested on the AI.

Instruments

Sociodemographic information (e.g., age, gender), family constitution (e.g., number of siblings, parent`s employment status) and school information (e.g., school grade) were collected.

The Aspiration Index (AI) is a self-report scale that measures personal aspirations (Grouzet et al., 2005). This scale allows assessment on how important each goal is across 11 different domains. The subscales measure the following domains: Financial success (4 items), image (5 items), popularity (4 items), self-acceptance (8 items), affiliation (6 items), community feeling (4 items) and physical health (5 items), conformity (5 items), hedonism (5 items), safety (5 items) and spirituality (6 items). The scale contains 57 items, answered on a 9-point Likert scale, ranging from 1 (*not at all*) to 9 (*extremely*).

The *Satisfaction with Life Scale* (SWLS; Diener et al., 1985; Portuguese version from Neto et al., 1990) is a 5-item self-report measure that evaluates global cognitive judgments of satisfaction with one's life. Items are answered using a 7-point Likert scale, ranging from 1 (*totally in disagreement*) to 7 (*totally in agreement*). Cronbach's alpha: .79.

Father and Mother Attachment Questionnaire (FMAQ) - (Matos & Costa, 2001) is a self-report measure that evaluates attachment representations of adolescents and young adults regarding their parental figures (father and mother, separately), across three dimensions (each consisting of 10 items), namely: The quality of emotional bond (QLE), separation anxiety (AS) and inhibition of exploration and individuality (IEI). Items are answered with a 6-point Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Cronbach`s alpha: The quality of emotional bond .94, separation anxiety .87, inhibition of exploration and individuality .79.

Procedure

The translation and adaptation to Portuguese language followed the guidelines provided by the American Educational Research Association et al. (1999). The items of the original questionnaire were translated from English to Portuguese by the first author and two independent researchers. The second step was to achieve full consensus for the lexical and cultural equivalence, from the three initial translations and the assistance of two senior researchers with expertise in psychology and adolescent's development. This version was then back-translated by a fluent psychologist and professional translator (any discrepancy between the translation sense and the original questionnaire was identified).

After lexical equivalence and content validity were defined, a cognitive debriefing analysis was performed with 21 adolescents representing the focus group in terms of age and school level (M = 15; SD = 2.07, range 12–18 years). This debriefing allowed examining the intelligibility of the items, instructions, and response scheme for the general population and to test for the face validity of the translated version. Participants were asked to answer about the difficulties and the meaning of the items and their comments or suggestions were considered to improve the scale. The final version was refined taken into account comments and suggestions of the participants. These 21 students were not incorporated into the sample of the present study.

The study was approved by the Ethical Committee of the Faculty of Psychology and Education Sciences at the University of Porto, the Northern Regional Education Directorate and the School Executive Boards. After approval to collect data was provided by students and

their parents, all participants completed a set of instruments voluntarily and anonymously, with no financial compensation involved. The students completed the psychological instruments and then the demographic survey. It should be noted that the order of the questionnaires was inverted randomly by groups in order to avoid bias in the results. The time of administration was 30–40 min. One researcher was available during all administration sessions to answer questions and ensure confidentiality. The analyses were run with IBM SPSS Statistics 24, IBM SPSS Amos v.24, and the CFAs with (Mplus 6.1, Muthén & Muthén, 2010). A post hoc power analysis was conducted using the software package, GPower (Faul et al., 2009).

Results

Descriptive Analyses

Results concerning descriptive statistics are presented for each AI item in Table 1. Severe violation of normality was not found for AI items (Curran et al., 1996). Thus, any item was dropped on the basis of violation of the normality assumption.

Factor Analysis

Confirmatory Factor Analysis

The factorial structure was tested through confirmatory factor analysis (CFA), which was conducted to test the eleven-factor model proposed by Grouzet et al. (2005). Factor analyses were performed using the Mplus program (Muthén & Muthén, 2010), with a weighted least squared means and variance adjusted (WLSMV) estimator that is designed for ordinal data (Flora & Curran, 2004). The models were evaluated using the chi-square test, comparative fit index (CFI), Tucker-Lewis fit index (TLI), and root mean square error of approximation (RMSEA). We assumed the chi-square/*df* statistic < 5 to indicate acceptable model fit (Marôco, 2014); CFI and TLI values between .90 and .95 to signify acceptable model fit, and good fit above .95; and that RMSEA values less than .08 indicate acceptable model fit, and below .05 suggest good model fit (Brown, 2015).

The resulting model did not show satisfactory fit indices for an eleven-factor solution, $\chi^2(934) = 6{,}714.656$; $p = .000$; $\chi^2/df = 7.189$; CFI = .92, TLI = .91, RMSEA = .06. Results showed high covariance between several factors, namely: popularity and financial success (.85), popularity and image (.87), conformity and self-acceptance (.91), conformity and affiliation (.90), self-acceptance and affiliation (.90), conformity and community feeling (.88), self-acceptance and community feeling (.87), affiliation and community feeling (.86), conformity and hedonism (.87), self-acceptance and hedonism (.84), affiliation and hedonism (.82), conformity and safety (.89), self-acceptance and safety (.97), affiliation and safety (.91), hedonism and safety (.85). Consequently, a second-order model was performed in accordance with past work from the self-determination theory tradition (e.g., Kasser, 2002; Kasser & Ryan, 1993). We listed four second-order factors. One included intrinsic aspirations. Another included extrinsic aspirations. A third factor was self-transcendent dimension that involved spirituality and a fourth factor related with a physical dimension that included hedonism (Grouzet et al., 2005). This model also failed to reach an acceptable fit to the data $\chi^2(976) = 14{,}885.676$; $p < .001$; $\chi^2/df = 15{,}251$; CFI = .80, TLI = .79, RMSEA = .10. As fit indices were still not satisfactory we analyzed the data using an exploratory factor analysis.

Exploratory Factor Analysis

The total sample was randomly divided into two groups. The first sample (657 participants) was used to perform an EFA and the second (702 participants) was used to test with a CFA the validation of the AI found structure.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO = .95) and Bartlett's test of Sphericity, $\chi^2_{(1081)} = 14{,}524.452$; $p < .001$, indicated that the data were adequate for conducting an exploratory factor analysis. Both values indicated that our sample satisfies the requirement assumptions for proceeding with EFA (Hatcher, 2013). We performed an exploratory factor analysis with no rotation and found 7 factors with eigenvalues greater than one. We also looked at the scree plot and used parallel analysis (Patil et al., 2007), and both supported the retention of three factors. We therefore conducted an exploratory factor analysis (EFA) extracting three factors, using principal axis factoring. An oblique promax rotation (Cureton & Mulaik, 1975) was used to assess the theoretical and empirical hypothesis of correlation between AI factors. The cumulative explained variance by this three-factor solution was 46.6%. The factor loadings for a three-factor solution are presented in Table 2. Items 34, 7, 23, 48, 37, 51, 33, 31, 32, 41 and 27 were deleted after the three-factor solution, because they presented low loadings (below .40) or high cross loadings. Items included in Factor 1 correspond to the intrinsic aspirations, while items of Factor 2 and 3 correspond to the extrinsic aspirations and spirituality, respectively. However, two extrinsic aspiration items were organized on intrinsic factor. Through a semantic analysis of Item 52 (*I will "fit in" with others*) and of Item 15 (*I will be polite and obedient*) we suggest that Items 52 and 15 are better-suited to the intrinsic dimension, as suggested by Schwartz's (1992). According to his research results

Table 1. *Descriptive Data of IA Items (N = 1,359)*

Sca	Nr	Item	*M*	*SD*	*Min*	*Max*	*Skew*	*Kur*
Self.	2	I will be efficient	7.64	1.32	1	9	–0.91	0.53
Self.	7	I will choose what I do, instead of being pushed along by life	7.76	1.59	1	9	–1.47	2.12
Self.	20	I will feel free	8.04	1.41	1	9	–1.85	4.00
Self.	28	I will deal effectively with problems in my life	7.65	1.39	1	9	–1.03	0.85
Self.	38	I will feel good about my abilities	7.68	1.49	1	9	–1.32	1.94
Self.	45	I will overcome the challenges that life presents me	7.85	1.39	1	9	–1.40	2.05
Self.	46	I will have insight into why I do the things I do	7.64	1.46	1	9	–1.24	1.81
Com.	6	I will assist people who need it, asking nothing in return	7.83	1.54	1	9	–1.54	2.44
Com.	21	The things I do will make other people's lives better	7.39	1.63	1	9	–1.21	1.68
Com.	47	I will help the world become a better place	7.49	1.66	1	9	–1.19	1.33
Afil.	8	People will show affection to me, and I will to them	7.51	1.56	1	9	–1.38	2.58
Afil.	19	I will feel that there are people who really love me	8.23	1.24	1	9	–2.05	4.83
Afil.	24	Someone in my life will accept me as I am, no matter what	8.20	1.31	1	9	–2.01	4.39
Afil.	43	I will express my love for special people	8.13	1.35	1	9	–2.02	4.78
Afil.	50	I will have a committed, intimate relationship	7.97	1.47	1	9	–1.75	3.24
Health	23	I will be in good physical shape	7.60	1.69	1	9	–1.39	1.86
Health	31	I will feel good about my level of physical fitness	7.65	1.54	1	9	–1.24	1.37
Health	40	I will be relatively free from sickness	7.38	2.10	1	9	–1.37	1.18
Health	53	I will be physically healthy	8.06	1.34	1	9	–1.60	2.40
Fin.	12	I will have many expensive possessions	4.82	2.26	1	9	–0.03	–0.84
Fin.	32	I will be financially successful	7.32	1.70	1	9	–1.06	0.89
Fin.	42	I will have enough money to buy everything I want	6.23	2.36	1	9	–0.57	–0.61
Fin.	51	I will have a job that pays well	7.79	1.56	1	9	–1.44	2.09
Image	3	My image will be one other's find appealing	6.01	2.19	1	9	–0.45	–0.48
Image	13	I will achieve the "look" I've been after	6.39	2.17	1	9	–0.67	–0.31
Image	30	People will often comment about how attractive I look	5.47	2.45	1	9	–0.25	–0.91
Image	39	I will successfully hide the signs of aging	5.64	2.51	1	9	–0.38	–0.88
Image	55	I will keep up with fashions in clothing and hair	5.65	2.55	1	9	–0.35	–0.99
Pop.	14	I will be admired by many people	5.77	2.37	1	9	–0.35	–0.80
Pop.	22	My name will be known by many different people	5.50	2.43	1	9	–0.24	–0.91
Pop.	37	Most everyone who knows me will like me	7.30	1.68	1	9	–1.06	0.96
Conf.	15	I will be polite and obedient	8.04	1.42	1	9	–1.86	3.84
Conf.	27	I will live up to the expectations of my society	5.95	2.11	1	9	–0.58	–0.14
Conf.	41	My desires and tastes will be similar to those of other people	4.14	2.38	1	9	0.21	–0.98
Conf.	52	I will "fit in" with others	7.73	1.41	1	9	–1.18	1.25
Safety	10	I will have few threats to my personal safety	7.34	2.02	1	9	–1.45	1.71
Safety	18	My basic needs for food, shelter and clothing will be met	8.10	1.34	1	9	–1.73	3.08
Safety	29	I will feel safe and secure	7.90	1.36	1	9	–1.48	2.65
Safety	34	I will not have to worry about bad things happening to me	6.65	2.07	1	9	–0.75	–0.04
Spir.	4	I will find personal answers to universal spiritual questions (such as: Is there a supreme spiritual being? Is there life after death? What is the meaning of life?)	4.77	2.52	1	9	0.08	–1.07
Spir.	26	I will find satisfying religious and/or spiritual activities	4.61	2.48	1	9	0.07	–1.05
Spir.	36	I will find religious or spiritual beliefs that help me make sense of the world	4.53	2.56	1	9	0.11	–1.13
Spir.	44	I will find religious and/or spiritual beliefs that are growth–producing	4.64	2.60	1	9	0.03	–1.18
Spir.	49	My life and actions will be in agreement with my religious/spiritual beliefs	4.80	2.58	1	9	–0.04	–1.13
Hed.	16	I will have a great sex life	6.92	2.19	1	9	–1.01	0.30
Hed.	33	I will have a lot of excitement in my life	7.31	1.57	1	9	–0.86	0.47
Hed.	48	I will experience a great deal of sensual pleasure	7.49	1.69	1	9	–1.28	1.49

Note. The missing items (1, 5, 9, 11, 17, 25, 35, 54, 56 and 57) were never used by the original authors of the scale. Sca = subscale in the original AI; Nr = item number in the original AI; Self = self-acceptance; Com = community feeling; Afil = affiliation; Fin = financial success; Pop = popularity; Conf = conformity; Spir = spirituality; Hed = hedonism.

Table 2. *Factor Loadings for the Three-Factor Solution*

Item (number and content)			Factor 1	Factor 2	Factor 3
Self.	45	I will overcome the challenges that life presents me	.817		
Self.	46	I will have insight into why I do the things I do	.728	–.101	
Afil.	19	I will feel that there are people who really love me	.686		
Self.	28	I will deal effectively with problems in my life	.684		
Self.	38	I will feel good about my abilities	.671		
Health	53	I will be physically healthy	.660		
Safety	29	I will feel safe and secure	.651		
Afil.	43	I will express my love for special people	.628		
Afil.	24	Someone in my life will accept me as I am, no matter what	.619		
Conf.	52	I will "fit in" with others	.610		
Afil.	8	People will show affection to me, and I will to them	.600		
Self.	20	I will feel free	.598		
Com	47	I will help the world become a better place	.597	–.153	.167
Afil.	50	I will have a committed, intimate relationship	.579		
Conf.	15	I will be polite and obedient	.565		
Safety	18	My basic needs for food, shelter and clothing will be met	.562	.105	–.110
Com.	6	I will assist people who need it, asking nothing in return	.558	–.269	.183
Com.	21	The things I do will make other people's lives better	.541		
Self.	2	I will be efficient	.491		
Health	40	I will be relatively free from sickness	.478		
Safety	10	I will have few threats to my personal safety	.463		
Fin.	12	I will have many expensive possessions		.815	
Image	30	People will often comment about how attractive I look		.804	
Pop.	22	My name will be known by many different people		.685	
Pop.	14	I will be admired by many people		.673	
Image	13	I will achieve the "look" I've been after		.655	
Image	55	I will keep up with fashions in clothing and hair		.650	
Fin.	42	I will have enough money to buy everything I want		.630	
Image	39	I will successfully hide the signs of aging		.613	.128
Image	3	My image will be one other's find appealing		.541	
Hed.	16	I will have a great sex life		.420	
Spir.	44	I will find religious and/or spiritual beliefs that are growth-producing			.910
Spir.	36	I will find religious or spiritual beliefs that help me make sense of the world			.876
Spir.	26	I will find satisfying religious and/or spiritual activities			.835
Spir.	49	My life and actions will be in agreement with my religious/spiritual beliefs			.817
Spir.	4	I will find personal answers to universal spiritual questions (such as: Is there a supreme spiritual being? Is there life after death? What is the meaning of life?)			.468
Total = 46.6			28.3	10.5	7.8

Note. Self = self-acceptance; Com = community feeling; Afil = affiliation; Fin = financial success; Pop = popularity; Conf = conformity; Spir = spirituality; Hed = hedonism.

conformity was most close and has much in common with affiliation aspirations, given that conformity values are related to benevolence values.

The retained 36 items were then analyzed in a confirmatory factor analysis in the second independent sample.

Confirmatory Factor Analysis

The resulting model showed satisfactory fit indices for a three-factor solution $\chi^2(591) = 1{,}957.451$; $p < .001$; $\chi^2/df = 3.31$ CFI = .96, TLI = .95, RMSEA = .05. Results showed the following covariance between the factors: Intrinsic and extrinsic (.44), intrinsic and spirituality (.19), extrinsic and spirituality (.23).

Internal Consistency

Internal consistencies of the new subscales using Cronbach's alpha were as follows: α = .92 for Intrinsic Aspirations (21 items), α = .87 for Extrinsic Aspirations (10 items), and α = .89 for Self-transcendent Aspirations (5 items).

Correlations between the test and retest scores on each subscale of AI were estimated using the ICC

Table 3. *Standardized Regression Coefficients between the Subscales of the Portuguese Aspiration Index and FMAQ and SWLS*

	1	2	3	7	8	9	10	11	12	13
AI	-									
1 - Intrinsic										
2 - Extrinsic	.395**	-								
3 - Spirituality	.203**	.270**	-							
FMAQ	.248**	.059	.113**	-						
4 – QBE (mother)										
5 – AS (mother)	.184**	.165**	.289**	.629**	-					
6 – IEI (mother)	–.047	.143**	.144**	–.313**	.047	-				
7 – QBE (father)	.223**	.064	.099**	.570	.354	–.220**	-			
8 – AS (father)	.149**	.127**	.242**	.412**	.746**	.031	.722**	-		
9 – IEI (father)	–.037	.118**	.130**	–.215**	.072**	.823**	–.104**	.120**	-	
10 – SWLS	.142**	.108**	126**	.452**	.249**	–.196**	.408**	.279**	–.157**	-

Note. AI = Aspiration Index; FMAQ = father and mother attachment questionnaire; QBE = Quality of the emotional bond; Sa = Separation Anxiety; IEI = Inhibition of exploration and individuality; SWLS = satisfaction with life scale.

*p < .005. ** p < .001.

Table 4. *Fit Indexes for the Different Tested Models*

	χ^2	*Df*	CFI	RMSEA
Unconstrained model	2,433.220	1174	.894	.03
Measurement weights	2,488.681	1207	.892	.03
Measurement intercepts	2,562.555	1206	.886	.04

(Intraclass correlation coefficient: Two-way random effect model; absolute agreement definition) statistics. The one month test–retest reliability coefficient for the AI was .78, 95% CI [.71, .83] for intrinsic aspirations, .81, 95% CI [.75, .85] for extrinsic aspirations and .84, 95% CI [.79, .88] for spirituality, reflecting good reliability.

Validity

Predictive Validity

To evaluate the predictive validity of the AI we performed Pearson correlations between the AI subscales and the Satisfaction with Life Scale and FMAQ. The results showed that satisfaction with life is significant and positively correlated with all AI subscales. The results also showed significant and positive correlations between AI subscales and attachment to parents. Table 3 shows these correlations. The results show that AI does not lose predictive power.

Invariance of the AI

We also tested if the AI was invariant for boys and girls. Equivalence of measurement for boys and girls was evaluated with multigroup analysis (IBM SPSS Amos v.24). The analyses involved three nested models corresponding to different levels of equivalence across gender: Configural invariance, metric invariance and scalar invariance. Configural invariance was found $\chi^2(1,174) = 2{,}433.220$; $\chi^2/df = 2.073$; CFI = .89, TLI = .88, RMSEA = .03. The CFI index is not sensitive to sample size or non-normal data. So, in these analyses Cheung and Rensvond (2002) recommend using the difference in the comparative fit index (ΔCFI) as an index to assess invariance between nested models and the baseline model. They suggest that a ΔCFI of less than or equal to .01 indicate a similar model fit. So, comparing the unconstrained model with the measurement weights and compare the estimates of the two groups, we found that they are invariant (CFI <= .01 and RMSEA < .015). Comparisons of the metric versus scalar invariance models CFI <= .01 and RMSEA < .015, the difference in CFI was above the recommended cutoff of .01: ΔCFI = .02. We therefore follow a sequential process of freeing the intercepts of four items (Items 3, 12, 16 and 55). Having carried out these changes, we found partial scalar measurement invariance (CFI <= .01 and RMSEA < .015). Table 4 shows chi-square statistics and overall fit indices for each of the three models testing configural, metric, and scalar invariance, as well as comparative fit indices between nested models.

Discussion

The purpose of the current study was to adapt and validate the Aspiration Index to Portuguese

adolescents. In general, the results of the present study suggest that the Aspiration Index is a reliable measure to assess adolescents' aspirations contents in the Portuguese population. The results showed that the original 11 aspirations structure does not fit the current adolescent sample. However, the new structure of the instrument suggesting that the aspirations differ in terms of whether they are intrinsically or extrinsically oriented, is consistent with results from previous research (Deci & Ryan, 2012; Grouzet et al., 2005; Kasser, 2002; Kasser & Ryan, 1993). The present data confirmed that the intrinsic aspirations factor includes self-acceptance, affiliation, community feeling, and physical health items as hypothesized, and are supported by previous studies (Deci & Ryan, 2012; van Hiel & Vansteenkiste, 2009) safety aspiration also added here, in line with predictions derived from Maslovian theory (Maslow, 1954). As such, safety aspiration is much in common with intrinsic pursuits, because they are inherently rewarding and directly satisfy innate basic psychological needs had by all people (Maslow, 1954; see also Kasser, 2002).

On the other hand, consistent with previous studies the extrinsic aspirations factor includes financial success, image, popularity and conformity (Kasser, 2002). Regarding spirituality and hedonism aspirations it was expected that none could be classified as typically intrinsic or extrinsic. As such, spirituality and hedonism represented a self-transcendent and physical dimension of aspirations, respectively (Grouzet et al., 2005). However, the results of the present study are not in accordance with previous research (Grouzet et al., 2005), i.e, in our sample, hedonism presented a more extrinsic aspiration. Hedonism is related to the pursuit of a variety of pleasures, namely, sensual pleasure. These results suggest that for adolescents this type of aspirations could generate admiration, sense of power and self-esteem (Vansteenkiste et al., 2006), such as extrinsic aspirations. In this sense, in our sample the results confirmed that the Aspiration Index assesses adolescents` aspirations of three distinct aspects well organized by intrinsic, extrinsic and self-transcendent (spirituality) aspirations (Grouzet et al., 2005).

The results also showed that the construction of aspirations and the meaning of each aspiration for adolescents are different from adults. According to developmental theories adolescence is a particular phase characterized by exploration. The initial phase of the stage begins with the adolescents' awareness of meaning, goals and aspirations, however, as the name implies, the key behavior of this stage is exploration and the choices of young people are mostly unrealistic and do not have much meaning in the long term for them (Savickas, 2002). However, as they get older, adolescents tend to manifest more realistic aspirations (Croll et al., 2010).

The analysis also allowed us to detect problems with some items, suggesting the removal of eleven items. Two of the four items of conformity clustered in the intrinsic factor in EFA. In the literature conformity varies with regard to their placement on the intrinsic-extrinsic dimension. Schwartz's model suggests that conformity is associated with affiliation aspirations, in that conformity values are related to benevolence values in his research. In contrast, conformity could have much in common with extrinsic pursuits, given that conformity aspirations are concerned with obtaining external praise (Kasser, 2002). Conformity is related to peoples` efforts to be framed socially, i.e., people's attempts to fit in with others in their social environment. According to attachment theory, Bowlby (1980) postulated the universal need to establish affective bonds. During adolescence social world expands quantitatively and qualitatively and acquires particular relevance, given that fit in with others may constitute a barometer of psychological adaptation. Thus, to be socially accepted seems to be more closely with affiliation aspirations and inherently satisfying to pursue, congruent with intrinsic aspirations (see Kasser, 2002). Furthermore, through a semantic analysis of item 52 (*I will "fit in" with others*) and of item 15 (*I will be polite and obedient*) we suggest that item 52 and 15 are better-suited to intrinsic dimension.

The criterion validity of the scale was considered to examine the relationship of the AI to several different, but related measures. AI scores were correlated positively with scores on measures of satisfaction with life and attachment. Thus aspirations are associated with higher likelihood of positive outcomes, such as, satisfaction with life. Similarly, aspirations have been related with basic psychological needs, i.e., given that intrinsic aspirations are closely related to fulfillness of needs for competence, relatedness and autonomy (Kasser, 2002). Finally, consistent with earlier works attachment with significant figures contributes to the formulation and projection of adolescents' life aspirations and well-being. Therefore, secure attachment helps to pursuit intrinsic and healthy aspirations (e.g., self-acceptance and personal growth, intimacy and friendship). Supportive relationships provide the foundation of the development of adolescents` aspirations and subsequent engagement in activities and maintenance of behaviors (La Guardia & Patrick, 2008). On the other hand, extrinsic aspirations are associated with more difficult and less satisfying relationships (Knee et al., 2013; La Guardia & Patrick, 2008). These findings indicate that AI is related with satisfaction with life and attachment representations, providing additional support for the criterion validity of the AI for adolescents.

The multigroup analysis reveals that the three-factor structure of the AI is similar across gender. We found

evidence of configural invariance, which indicates that boys and girls conceptualize life aspirations in the same three-dimensional structure. We also found evidence of metric invariance, which attests that the latent variable is related to the items in the same way for boys and girls. However, we did not find evidence of full scalar invariance, which indicates that item intercepts were not invariant for boys and girls. Results suggest that item intercept for Item 3, 12, 16 and 55 were not invariant. The lack of full scalar invariance has also been obtained in Grouzet et al. (2005) study that tested the measurement equivalence of each goal subscale across cultures. It should be emphasized that it is unlike to hold in practice full measurement invariance, however appropriate crossgroup comparisons can be made with partial measurement invariance (Milfont & Fischer, 2010).

The Cronbach's alphas of the subscales indicated that the Aspiration Index dimensions are internal consistent and reliable across one month interval. Thus, the results suggest that Portuguese version of the AI proved to be valid for evaluating aspirations of life and can be administered to adolescents.

Although our results provide some important information about adolescents` aspirations, this study is limited in some respects. The first limitation of the study concerns exclusive use of self-report instruments, which increases common method variance and is more susceptible to social desirability biases. A second limitation of the study concerns the sample, only composed by adolescents. Thus, future research with the Portuguese version should consider AI scores of various groups, ages and demographic regions and analyze the invariance across these groups. Furthermore, it would be relevant in the future to include longitudinal and other assessment methods such as interviews to infer causality and to further establish the validity of the AI.

Conflicts of Interest:

None.

Funding Statement:

This work was supported by a PhD Scholarship from the Portuguese Foundation for Science and Technology granted to the first author (SFRH/BD/101391/2014).

References

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999). *Standards for educational and psychological testing*. American Educational Research Association.

Bering, J. M, & Bjorklund, D. F. (2004). The natural emergence of reasoning about the afterlife as a developmental regularity. *Developmental Psychology*, *40*(2), 217–233. http://doi.org/10.1037/0012-1649.40.2.217

Bowlby, J. (1980). *Attachment and loss. In sadness and depression (Vol. 3)*. Basic Books.

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd Ed.). Guilford Press.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *9*(2), 233–255. http://doi.org/10.1207/S15328007SEM0902_5

Croll, P., Attwood, G., & Fuller, C. (2010). *Children's lives, children's futures*. Continuum.

Crumbaugh, J. C., & Maholick, L. T. (1969). *Manual of instructions for the Purpose in Life Test*. Saratoga: Viktor Frankl Institute of Logotherapy.

Cureton, E. E., & Mulaik, S. A. (1975). Weighted varimax rotation and promax rotation. *Psychometrika*, *40*, 183–195. http://doi.org/10.1007/BF02291565

Curran, P. J., Harford, T. C., & Muthén, B. O. (1996). The relation between heavy alcohol use and bar patronage: A latent growth model. *Journal of Studies on Alcohol*, *57*(4), 410–418. http://doi.org/10.15288/jsa.1996.57.410

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goals pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268. http://doi.org/10.1207/S15327965PLI1104_01

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development and health. *Canadian Psychology*, *49*(3), 182–185. http://doi.org/10.1037/a0012801

Deci, E., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social context: An overview of Self-Determination Theory. In M. R. Ryan (Ed.), *Oxford handbook of human motivation* (pp. 85–107). Oxford University Press.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*, 71–75. http://doi.org/10.1207/s15327752jpa4901_13

Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods*, *9*, 466–491. http://doi.org/10.1037/1082-989X.9.4.466

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160. http://doi.org/10.3758/BRM.41.4.1149

Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., Ryan, R. M., Saunders, S., Schmuck, P., & Sheldon, K. M. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, *89*, 800–816. http://doi.org/10.1037/0022-3514.89.5.800

Hatcher, L., (2013). *Advanced statistics in research: Reading, understanding and writing up data analysis results*. Shadow Finch Media, LLC.

Kasser, T. (2002). Sketches for a self-determination theory of values. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 123–140). University of Rochester Press.

Kasser, T., & Ryan, R. M. (1993). A dark side of American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychological*, *65*(2), 410–422. http://doi.org/10.1037/0022-3514.65.2.410

Knee, C. R., Hadden, B. W., Porter, B., & Rodriguez, L. M. (2013). Self-Determination Theory and romantic relationship processes. *Personality and Social Psychology Review*, *17*(4), 307–324. http://doi.org/10.1177/1088868313498000

Knee, C. R., Patrick, H., Vietor, N. A., Nanayakkara, A., & Neighbors, C. (2002). Self-determination as growth motivation in romantic relationships. *Personality and Social Psychology Bulletin*, *28*, 609–619. http://doi.org/10.1177/0146167202288005

La Guardia, J., & Ryan, R. (2002). What adolescents need: Self-determination theory on development within families, schools and society. In F. Pajares & T. Urban (Eds.), *Motivation of Adolescents* (pp. 193–219). Information Age Publishing.

La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, *79*, 367–384. http://doi.org/10.1037//0022-3514.79.3.367

La Guardia, J. G., & Patrick, H. (2008). Self-determination theory as a fundamental theory of close relationships. *Canadian Psychology*, *49*, 201–209. http://doi.org/10.1037/a0012760

Little, B. R. Salmela-Aro, K., & Phillips S. D. (2007). *Personal project pursuit. Goals, action, and human flourishing*. Erlbaum.

Marôco, J. P. (2014). *Análise de equações estruturais: Fundamentos teóricos, software & aplicações* (2nd Ed.) [Structural equations analysis: Theoretical foundations, software & applications]. Report Number.

Maslow, A. H. (1954). *Motivation and personality*. Harper & Row.

Massey, E. K., Gebhardt, W. A., & Garnefski, N. (2008). Adolescent goal content and pursuit: A review of the literature from the past 16 years. *Developmental Review*, *28*, 421–460. http://doi.org/10.1016/j.dr.2008.03.002

Matos, P. M., & Costa, M. E. (2001). *Father and mother attachment questionnaire* [Unpublished manuscript]. Faculty of Psychology and Education Sciences, University of Porto.

Milfont, T. L., & Fischer, R. (2010). Testing measurement invariance across groups: Applications in cross-cultural research. *International Journal of Psychological Research*, *3*(1), 111–121. http://doi.org/10.21500/20112084.857

Muthén, L. K., & Muthén, B. O. (2010). *Mplus user's guide* (6th Ed.). Muthén & Muthén.

Neto, F., Barros, J. F., & Barros, A. (1990). Satisfação com a vida [Satisfaction with life]. In L. Almeida, R. Santiago, P. Silva, O. Caetano, & J. Marques (Eds.), *A acção educativa: Análise psico-social* [Educational action: Psycho-social analysis]. Esel/Apport.

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence and relatedness in the classroom: Applying self-determination to educational practice. *Theory and Research in Education*, *7*(2), 133 –144. http://doi.org/10.1177/1477878509104318

Núñez-Rodriguez, S., de Souza, A. P. L., & Koller, S. H. (2016). Cross-cultural adaptation and psychometric properties of the Portuguese version of the Aspiration Index (AI). *Trends in Psychology/Temas em Psicologia*, *24*(3), 1169–1180. http://doi.org/10.9788/TP2016.3-20

Patil, V. H., Singh, S. N., Mishra, S., & Donavan, D. T. (2007). *Parallel analysis engine to aid determining number of factors to retain* [Computer software]. http://smishra.faculty.ku.edu/parallelengine.htm

Peralta, E., & Silva, M. E. D. (2003). Teste dos objectivos de vida (P. I. L.-R) [Life goals test]. In M. M. Gonçalves, M. R. Simões, L.S. Almeida, & C. Machado (Coords.), *Avaliação psicológica - Instrumentos validados para a população portuguesa* [Psychological evaluation - Instruments validated for the Portuguese population] (Vol.*1*). Quarteto.

Patrick, H., Neighbors, C., & Knee, C. R. (2004). Appearance-related social comparisons: The role of contingent self-esteem and self-perceptions of attractiveness. *Personality and Social Psychology Bulletin*, *30*, 501–514.

Reeve, J. (2002). Self-determination theory applied to educational setting. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 183–203). University of Rochester Press.

Rijavec, M., Brdar, I., & Miljković, D. (2011). Aspirations and well-being: Extrinsic vs. intrinsic life goals. *Društvena Istraživanja*, *20*(113), 693–710. http://doi.org/10.5559/di.20.3.05

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*, 54–67. http://doi.org/10.1006/ceps.1999.1020

Romero, E., Gómez-Fraguela, J. A., & Villar, P. (2012). Life aspirations, personality traits and subjective well-being in a Spanish sample. *European Journal of Personality*, *26*, 45–55. http://doi.org/10.1002/per.815

Savickas, M. L. (2002). Career construction: A developmental theory of vocational behavior. In D. Brown & Associates (Eds.), *Career choice and development* (4th Ed., pp. 149–205). Jossey-Bass.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. *25*, pp. 1–65). Academic Press.

Simons, J., Dewitte, S., & Lens, W. (2000). Wanting to have versus wanting to be: The effect of perceived instrumentality on goal orientation. *British Journal of Psychology*, *91*(3), 335–351. http://doi.org/10.1348/000712600161862

van Hiel, A., & Vansteenkiste, M. (2009). Ambitious fulfilled? The effects of intrinsic and extrinsic goal attainment on older adults' ego-integrity and death attitudes. *The International Journal of Aging and Human Development*, *68*(1), 27–51. http://doi.org/10.2190/ag.68.1.b

Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal-contents in Self-Determination Theory: Another look at the quality of academic motivation. *Educational Psychologist*, *41*, 19–31. http://doi.org/10.1207/s15326985ep4101_4