anales de psicología / annals of psychology
2024, vol. 40, nº 3 (october), 385-398
https://doi.org/10.6018/analesps.580371


ISSN online: 1695-2294.
https://revistas.um.es/analesps



# Positive Psychological Functioning Scale in Spanish Adolescents (PPF-A)

Mª Dolores Merino[1,*], and Jesús Privado[2]

[1]*Universidad Complutense de Madrid, Madrid, Spain*
[2]*Centro de Enseñanza Superior Cardenal Cisneros, Madrid, Spain*

**Título:** Escala de Funcionamiento Psicológico Positivo en adolescentes españoles (PPF-A).
**Resumen:** Presentamos la adaptación y validación de una escala de Funcionamiento Psicológico Positivo en adolescentes españoles en una muestra de 1.858 (*M* = 14.50 años, *DT* = 2.87 años), previamente desarrollada para adultos (Merino & Privado, 2015b). La adaptación presenta una estructura jerárquica de un factor general y 11 de primer orden que explican adecuadamente los datos (GFI = 0.966, NFI = 0.966, SRMR = 0.053). La fiabilidad (consistencia interna y test-retest) es adecuada. Obtuviomos pruebas de la validez convergente y discriminante con otras medidas de bienestar subjetivo, bienestar psicológico, afecto psicológico, afecto positivo y negativo, y personalidad. El test tiene validez predictiva de los síntomas clínicos ($R^2$ = 0.17) y no existen diferencias en la medida en función del sexo y del periodo de la adolescencia considerado.
**Palabras clave**: Bienestar psicológico. Funcionamiento psicológico positivo. Adolescencia.

**Abstract:** We are presenting the adaptation and validation of a Positive Psychological Functioning scale in Spanish adolescents in a sample of 1,858 (*M* = 14.50 years, *SD* = 2.87 years), previously developed for adults (Merino & Privado, 2015b). The adaptation presents a hierarchical structure of one general factor and 11 of first order that suitably explain the data (GFI = 0.966, NFI = 0.966, SRMR = 0.053). The reliability (internal consistency and test-retest) is adequate. Evidence of convergent and discriminant validity of the test was found with other measures of subjective well-being, psychological well-being, positive and negative affect, and personality. The test has predictive validity on clinical symptoms ($R^2$ = 0.17) and there are no differences in the measure based on sex and the period of adolescence considered (early, middle and late). Finally, scales for the sample evaluated are provided.
**Keywords**: Psychological well-being. Positive psychological functioning. Adolescence.

## Introduction

Well-being is one of the best indicators of physical and mental health, so much so that it has been recognized as a highly important public health issue (Diener & Chan, 2011; Martín-María et al., 2017). There is differentiation between subjective and psychological well-being, although they are related. Thus, while subjective well-being refers to the balance between positive and negative affects (affective component) and the individual's assessment of his or her own life (cognitive component), psychological well-being refers to personal achievement, development as individuals, and places the focus on the human potentialities that allow us to function positively and "flourish" as people (Merino et al., 2015a). Accordingly, taking care of the well-being of individuals during all stages of life is essential, but it takes on special relevance during adolescence, since this is a period of transition between childhood and adulthood in which the learning acquired will condition, positively or negatively, future adult life (Esteban-Gonzalo et al., 2020). Therefore, well-being, in general, and psychological well-being, in particular, should be encouraged during this period.

### Adolescence

Adolescence has historically been identified in the popular consciousness as a problematic period (Rahola et al., 2002). And not for nothing, as it is a transitional state between what has been and what will be, accompanied by numerous biological, psychological and social changes. These changes can be operationally structured into three age periods, which are not watertight compartments, that exhibit continuity and where, obviously, there are many individual differences (Zaky, 2016). The World Health Organization (WHO, 1965, 1977) has proposed that adolescence ranges from 10 to 20 years of age, although the end age is unclear and there are authors who place it at 25 (Sawyer et al., 2018).

Adolescence is usually divided into three periods according to age (www.unicef.org): early (10 to 12 years), middle (13 to 16 years) and late (17 to 19-21 years). 1) Early adolescence on the physical level is characterized by the numerous biological changes that occur and are manifested, for example, in a rapid change of height, the appearance of pubic hair, sweating, etc., and on the psychological and social level, the peer group begins to have a lot of relevance and distancing from the parents begins. 2) In middle adolescence the search and construction of identity takes on great importance, separation from the parents is accentuated while the bond with equals is strengthened. Risky behaviors may manifest themselves (sexuality, drinking alcohol, etc.). And 3) In late adolescence, biological changes slow down, completing physical and sexual development, a certain degree of psychological maturation is reached, they think about the future and make decisions about it. There is huge interest in belonging and in consolidation of identity. Peer groups become smaller and relationships more individual.

Consequently, adolescence is considered a complex stage, during which rapid developmental changes can be associated with adaptation problems (Eryılmaz, 2012; Sawyer et al., 2018) that can manifest themselves as family conflicts, emotional instability, and behavioral problems. The greatest

*** Correspondence address [Dirección para correspondencia]:**
Mª Dolores Merino. Universidad Complutense de Madrid. Facultad de Psicología. Departamento de Psicología Social, del Trabajo y Diferencial. Campus de Somosaguas, 28223 – Pozuelo de Alarcón, Madrid, Spain.
E-mail: lolamerino@psi.ucm.es
*(Article received: 05-08-2023; revised: 16-06-2024; accepted: 18-06-2024)*

threats to adolescent health, in particular, and to society, in general, appear to be on the psychological rather than physical level. For example, depressive disorders, which usually begin in adolescence, are becoming the second disease with the greatest impact and burden on society in developed countries (Oliva, 2003) and suicide is the second leading cause of death in young people between the ages of 15 and 29 (www.unicef.org). This whole situation has worsened substantially due to COVID-19 (Merino et al., 2020; Panchal et al., 2021). In any case, and highlighting the importance of individual differences during adolescence, it is a fact that the numerous changes they experience during this period make them a vulnerable population (Sawyer et al., 2018). Thus, it is of particular importance to preserve the mental health of adolescents and to promote their well-being, in general, and their psychological well-being, in particular. It is therefore essential to have valid and reliable instruments for measuring psychological well-being in this population.

## Measuring psychological well-being

The Positive Psychological Functioning scale (PPF) (Merino & Privado, 2015b) is a measure of psychological well-being that consists of 33 items organized into 11 psychological resources (autonomy, resilience, self-esteem, purpose in life, enjoyment, optimism, curiosity, creativity, humor, environmental mastery and vitality), which in turn are grouped into a second order construct called Positive Psychological Functioning. Psychological resources are positive personality traits that nurture psychological well-being (Merino & Privado, 2015b; Ryff, 1989), which although stable, can be learned and shaped; they are valued in and of themselves because they are associated with favorable outcomes for the individual, such as physical and mental health; and they allow better adaptation to the environment and to change, promoting individual progress toward achieving personal goals and the satisfaction of needs (Hobfoll, 2002; Merino & Privado, 2015b). Psychological resources are tools that protect us from discomfort and make it easier for us to face adversity and adapt to the challenges that life places in front of us (Merino et al., 2023). Therefore, assessing the situation in which the adolescent's psychological resources are found and teaching them to acquire those in which they are weakest will be crucial during this period and throughout the rest of their life, as these will act as protectors for their mental health and, consequently, for their physical health.

The PPF scale has been adapted to different countries: Mexico (Merino et al., 2015), Portugal (Oliveira et al., 2018), Uruguay (Portela, 2021), Romania (Secu, 2022), Cuba (Iglesias et al., 2020) and Pakistan (Ahmad Al-Jinadi & Linah, 2018), with adapted psychometric properties and a hierarchical factorial structure (see Table 1). This measure is appropriate for use as of the age of 18, but not in younger populations. It presents evidence of convergent validity with similar measures: satisfaction with life, psychological well-being, positive and negative affect, personality, work satisfaction and entrepreneurship. And there is also data on predictive evidence of clinical symptoms (anxiety, depression and stress) and the possibility of finding a job after graduating from the university.

**Table 1**
*Evidence of reliability and validity of the Positive Psychological Functioning scale in Spanish, Mexican and Portuguese samples.*

| Authors | *N* | Internal consistency | Factorial structure | Convergence | Criterion |
|---|---|---|---|---|---|
| Merino & Privado (2015b) | 3,000 Spain | .64 to .91 | Hierarchical | Satisfaction with life: .56<br>Positive affect: .73<br>Negative affect: -.49 | Depression: -.61<br>Anxiety: -.37 |
| Merino & Privado (2015a) | 1,831 Spain | .51 to .81 | Hierarchical | Satisfaction with life: .21 to .44 | |
| Merino et al. (2015) | 184 Mexico | .56 to .91 | Hierarchical | Psychological well-being: .81<br>Satisfaction with life: .76<br>Positive affect: .65<br>Negative affect: -.45<br>Neuroticism: -.56<br>Extraversion: .47<br>Openness: .16<br>Agreeableness: .21<br>Conscientiousness: .48 | |
| Oliveira et al. (2018) | 1,131 Portugal | .60 to .90 | Hierarchical | Satisfaction with life: .61 | |
| Merino et al. (2019) | 542 Spain | .35 to .82 | | | Predicts 5.8% to find a job after graduation<br>Distress: -.20<br>Eustress: .12 to .20 |
| Merino & Privado (2020) | 610 Spain | .89 | | Satisfaction with life: .66<br>Positive affect: .58<br>Negative affect: -.39 | |
| Merino et al. (2021) | 199 Spain | .92 | | Satisfaction with life: .22<br>Work satisfaction: .44 to .49<br>Positive affect: .17<br>Negative affect: -.06 | |
| Valderrama (2021) | 417 Spain | .84 | | Entrepreneurship: .80 | |

### Objective

The objective of this research was to adapt the PPF scale to the Spanish adolescent population (PPF-A) aged 10 to 21 years to include the three periods in this stage of life. First, the internal structure of the test will be analyzed to verify whether the scales are grouped hierarchically. We expect the 11 psychological resources to be grouped in a second order factor, similar to what happens in the PPF scale for adults in different countries including Spain (Merino & Privado, 2015b; Merino et al, 2015a; Oliveira et al, 2018). Second, evidence of convergent and discriminant validity will be analyzed with other measures similar to those previously used (positive and negative affect, life satisfaction, well-being and personality). Third, the predictive evidence of the scale on clinical symptoms (anxiety, depression and stress) will be studied. Fourth, the evidence of differential validity will be analyzed to check for differences in the scale based on sex and the period of adolescence of those evaluated. And finally, the scales of the evaluated sample will be provided to facilitate interpretation of the test for future evaluators.

## Method

### Participants

Our reference population is adolescents between 10 and 21 years of age. We used a non-probabilistic sample made up of 1,858 Spanish adolescents, who were evaluated coming from different schools: public (18.3%), semi-private (31.0%) and private (50.7%). Women accounted for 48.9%. Average age was 14.50 years (*SD* = 2.87 years): 732 in early adolescence (10 to 13 years), 679 in middle adolescence (14 to 17 years) and 447 in late adolescence (14 to 21 years). Educational levels were: 25.8% Primary, 45.0% Secondary, 16.7% High School, 1.2% Vocational Training and 11.3% University. The only inclusion criterion was that the participant be an adolescent between 10 and 21 years of age. All subjects participated voluntarily, with prior informed consent given by their parents in the case of participants under eighteen or by themselves if they were eighteen or older. Given the characteristics of the sample, a high sample size, an equal proportion of each sex, different types of educational centers and different educational levels, the sample could be generalized for a population of adolescents between 10 and 21 years of age.

### Instruments

*Positive Psychological Functioning Scale* by Merino and Privado (2015b) adapted to adolescence (PPF-A). Includes 33 items measuring 11 psychological resources (autonomy, resilience, self-esteem, purpose in life, enjoyment, optimism, curiosity, creativity, humor, environmental mastery and vitality) with a 5-point Likert-type scale from strongly agree to strongly disagree. The test version can be found in Table 2.

**Table 2**
*Descriptive statistics, distribution and correlation of each item with the dimension to which it belongs ($r_{it}$).*

| Items | *M* | *SD* | Asymmetry | Kurtosis | $r_{it}$ |
|---|---|---|---|---|---|
| 1. I am proud to be who I am. | 4.03 | 0.96 | -0.98 | 0.68 | .71 |
| 2. I do not surrender easily to the difficulties of life. | 3.75 | 1.06 | -0.73 | -0.01 | .36 |
| 3. I consider myself an optimist. | 3.57 | 1.10 | -0.46 | -0.46 | .60 |
| 4. I can find new uses for objects. | 3.57 | 1.03 | -0.40 | -0.34 | .54 |
| 5. I have trust and confidence in myself. | 3.54 | 1.14 | -0.49 | -0.55 | .33 |
| 6. I organize myself very well in order to have time to do personal activities and homework, and to be with my friends. | 3.28 | 1.23 | -0.17 | -1.01 | .35 |
| 7. I am full of vitality. | 3.69 | 1.02 | -0.45 | -0.33 | .63 |
| 8. So far in my life, the important decisions that have come my way have been made by me. | 3.64 | 0.98 | -0.39 | -0.30 | .43 |
| 9. I am able to use very different things to create something new. | 3.36 | 1.06 | -0.16 | -0.54 | .55 |
| 10. I make my own decisions, even though others disagree. | 3.72 | 1.03 | -0.54 | -0.30 | .44 |
| 11. I will give everything to achieve what I want to do in my life. | 4.33 | 0.85 | -1.17 | 0.86 | .57 |
| 12. I can see things from completely different viewpoints. | 3.89 | 0.97 | -0.68 | -0.01 | .29 |
| 13. A sense of humor is very important in my life. | 4.10 | 0.99 | -0.93 | 0.26 | .50 |
| 14. Given the difficulties I become strong. | 3.78 | 0.97 | -0.57 | -0.08 | .53 |
| 15. I always notice the good side of thinks. | 3.38 | 1.11 | -0.19 | -0.76 | .58 |
| 16. I enjoy the little things life has to offer every day. | 3.78 | 0.98 | -0.53 | -0.21 | .49 |
| 17. I am interested in everything that happens around me. | 3.61 | 1.03 | -0.47 | -0.29 | .50 |
| 18. I am proud to be who I am. | 4.02 | 1.02 | -0.94 | 0.32 | .76 |
| 19. I put a lot of enthusiasm into everything I do. | 3.69 | 0.98 | -0.42 | -0.35 | .51 |
| 20. If I was born again, I'd like to be the way I am. | 3.78 | 1.21 | -0.74 | -0.41 | .69 |
| 21. I think the future will bring me more good than bad. | 3.91 | 0.99 | -0.71 | 0.06 | .40 |
| 22. In my daily life I can't do everything: high school/school, family, partner, | 2.88 | 1.22 | 0.04 | -0.93 | .14 |

| | | | | | |
|---|---|---|---|---|---|
| friends. | | | | | |
| 23. I can laugh in many situations. | 4.14 | 0.94 | -1.06 | 0.77 | .49 |
| 24. I strive to get the things that matter to me. | 4.25 | 0.82 | -1.11 | 1.27 | .60 |
| 25. Overcoming difficulties has made me stronger. | 4.09 | 0.92 | -0.85 | 0.31 | .49 |
| 26. I'm on the way to achieving my goals. | 3.93 | 0.96 | -0.74 | 0.16 | .55 |
| 27. Many things in life arouse my curiosity and interest. | 3.93 | 0.94 | -0.69 | 0.10 | .59 |
| 28. I do well with almost anything. | 3.66 | 1.03 | -0.43 | -0.43 | .47 |
| 29. I try to find humor in any situation. | 3.88 | 1.04 | -0.68 | -0.21 | .53 |
| 30. I love to learn and to discover new things. | 3.83 | 0.99 | -0.60 | -0.09 | .56 |
| 31. I manage the obligations I have properly and without stress. | 3.19 | 1.10 | -0.13 | -0.69 | .31 |
| 32. I'm a person full of energy. | 3.84 | 1.03 | -0.58 | -0.34 | .65 |
| 33. In life there are many things that fill me with enthusiasm. | 3.95 | 0.96 | -0.74 | 0.10 | .51 |

*Satisfaction With Life Scale* (SWLS) by Diener et al. (1985) which measures subjective well-being and consists of five Likert-type items with 5 points. The scale adapted to adolescents from Atienza et al. (2000) was used.

*Psychological Well-Being* (PWB) *Scales* by Ryff (1989) adapted by Díaz et al. (2006). It has 39 5-point Likert-type items and measures six dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, personal growth and purpose in life.

*Positive and Negative Affect Schedule* (PANAS) (Watson et al., 1988) adapted to adolescents by Fuentes and Medina (2015) consisting of 20 5-point Likert-type items measuring positive and negative affect.

*Big Five Questionnaire* (BFQ-NA) by Barbaranelli et al. (2006). This consists of 65 5-point Likert-type items and is administered to ages from 8 to 15 years. It measures the five dimensions of personality: extraversion, neuroticism, agreeableness, conscientiousness and openness to experience.

*NEO-FFI Personality Inventory* by Costa and McCrae (1989). This has 60 5-point Likert-type items and is administered for 16 years and older. It measures the five dimensions of personality.

*Depression Anxiety Stress Scale* (DASS-21) by Lovibond and Lovibond (1995). Made up of 21 5-point Likert-type items measuring three clinical symptoms: depression, anxiety and stress.

Table 3 shows the internal consistency values for each of the measures used.

## Procedure

*Qualitative phase.* Adaptation of the PPF scale to the adolescent population was done by recruiting 10 adolescents between the ages of 12 and 15 at a semi-private school and applying the original test, asking them to indicate which items they did not understand or did not fit their way of life. Then, following the Flick (2018) qualitative approach, a group meeting was held, led by a researcher, in which the problematic items were worked on and changes were made in the lexicon that allowed these items to be adjusted and understood, without changing what the item measured. Seven items were modified: In Item 4, *I know how to find new uses for things*, *things* was changed to *objects*; in Item 6, *I suitably balance my work, social and personal lives* changed to *I organize myself very well in order to have time to do personal activities and homework and to be with my friends*; in Item 8, *The important decisions in my life have been made by me, for better or worse,* changed to *So far in my life, the important decisions that have come my way have been made by me;* in Item 9, *I know how to associate disparate things and end up with something different* was formulated as *I am able to use very different things to create something new*; Item 10, *I hold the reins to my life* was written as *I make my own decisions, even though others disagree*; Item 11, *I am completely dedicated to achieving the objectives in my life* changed to *I will give everything to achieve what I want to do in my life*; Item 19, *I am an enthusiastic person*, was replaced by *I put a lot of enthusiasm into everything I do*; and finally, Item 22, *In my daily life I can't do everything: work, family, partner, friends*, the term *work* was changed to *high school/school.* Then, in order to verify whether the modifications were appropriate, the same procedure was followed with three other equivalent participants, finding that the changes had improved understanding of the test.

*Quantitative phase.* The participants were administered the PPF-A scale along with the other instruments in two sessions of 45 minutes each in groups of about 20-25 students, supervised by an evaluator who had been previously trained. After three months, only the PPF-A was administered again to the same people who had been evaluated to obtain a retest measure. Standards from the World Medical Association (WMA) Declaration of Helsinki of 1964 were followed, with subsequent modifications, as well as ethical rules from the College of Psychologists. The data was treated anonymously and confidentially and in accordance with Regulation (EU) 2016/679 of the European Parliament and the Council of April 27, 2016 on the protection of personal data. The study was approved by the Ethics Commission of the Centro de Enseñanza Superior Cardenal Cisneros.

**Table 3**

*Pearson correlations between PPF-A items.*

| Items | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | .31 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **3** | .41 | .29 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | .19 | .20 | .27 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **5** | .54 | .31 | .47 | .24 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | .21 | .21 | .24 | .17 | .30 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | .41 | .29 | .54 | .27 | .44 | .29 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | .25 | .24 | .22 | .17 | .27 | .21 | .24 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | |
| **9** | .21 | .24 | .28 | .59 | .26 | .23 | .29 | .23 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | | |
| **10** | .24 | .27 | .18 | .17 | .29 | .12 | .18 | .42 | .22 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | |
| **11** | .27 | .29 | .27 | .16 | .27 | .34 | .33 | .29 | .19 | .26 | 1.00 | | | | | | | | | | | | | | | | | | | | | | |
| **12** | .19 | .25 | .25 | .25 | .18 | .15 | .23 | .25 | .27 | .23 | .25 | 1.00 | | | | | | | | | | | | | | | | | | | | | |
| **13** | .15 | .17 | .20 | .09 | .14 | .02 | .24 | .17 | .10 | .16 | .22 | .25 | 1.00 | | | | | | | | | | | | | | | | | | | | |
| **14** | .30 | .34 | .32 | .26 | .34 | .22 | .34 | .32 | .27 | .32 | .32 | .32 | .22 | 1.00 | | | | | | | | | | | | | | | | | | | |
| **15** | .36 | .23 | .60 | .27 | .41 | .26 | .48 | .20 | .28 | .15 | .20 | .29 | .15 | .36 | 1.00 | | | | | | | | | | | | | | | | | | |
| **16** | .33 | .23 | .40 | .23 | .31 | .25 | .42 | .24 | .24 | .17 | .33 | .24 | .20 | .29 | .44 | 1.00 | | | | | | | | | | | | | | | | | |
| **17** | .20 | .18 | .25 | .29 | .20 | .22 | .30 | .19 | .29 | .14 | .23 | .26 | .17 | .23 | .29 | .38 | 1.00 | | | | | | | | | | | | | | | | |
| **18** | .70 | .34 | .44 | .19 | .61 | .26 | .44 | .29 | .20 | .30 | .34 | .20 | .18 | .35 | .40 | .38 | .24 | 1.00 | | | | | | | | | | | | | | | |
| **19** | .35 | .30 | .36 | .25 | .37 | .41 | .45 | .25 | .31 | .18 | .42 | .16 | .14 | .32 | .35 | .39 | .36 | .42 | 1.00 | | | | | | | | | | | | | | |
| **20** | .60 | .27 | .41 | .17 | .51 | .23 | .42 | .25 | .19 | .21 | .28 | .16 | .17 | .31 | .38 | .34 | .23 | .67 | .41 | 1.00 | | | | | | | | | | | | | |
| **21** | .33 | .28 | .36 | .18 | .36 | .27 | .34 | .24 | .22 | .17 | .36 | .21 | .15 | .27 | .35 | .34 | .26 | .43 | .36 | .38 | 1.00 | | | | | | | | | | | | |
| **22** | .12 | .02 | .08 | .01 | .15 | .15 | .08 | .02 | .02 | .05 | .10 | .01 | .01 | .02 | .05 | .03 | .00 | .11 | .10 | .09 | .09 | 1.00 | | | | | | | | | | | |
| **23** | .18 | .14 | .23 | .10 | .13 | .02 | .26 | .12 | .09 | .15 | .19 | .17 | .40 | .19 | .18 | .24 | .19 | .21 | .13 | .18 | .20 | .00 | 1.00 | | | | | | | | | | |
| **24** | .27 | .33 | .25 | .20 | .25 | .31 | .32 | .28 | .24 | .26 | .53 | .25 | .23 | .40 | .26 | .35 | .25 | .33 | .40 | .29 | .31 | .05 | .25 | 1.00 | | | | | | | | | |
| **25** | .28 | .29 | .26 | .19 | .27 | .23 | .32 | .30 | .23 | .30 | .42 | .28 | .22 | .52 | .23 | .31 | .25 | .33 | .31 | .29 | .29 | .02 | .21 | .47 | 1.00 | | | | | | | | |
| **26** | .37 | .33 | .34 | .20 | .37 | .32 | .34 | .32 | .26 | .26 | .46 | .26 | .20 | .39 | .32 | .36 | .28 | .44 | .43 | .40 | .41 | .08 | .21 | .50 | .45 | 1.00 | | | | | | | |
| **27** | .24 | .24 | .27 | .30 | .21 | .24 | .33 | .21 | .32 | .19 | .31 | .32 | .24 | .24 | .28 | .33 | .46 | .28 | .38 | .28 | .31 | .06 | .22 | .37 | .34 | .40 | 1.00 | | | | | | |
| **28** | .30 | .16 | .34 | .22 | .28 | .17 | .38 | .23 | .27 | .16 | .20 | .22 | .25 | .26 | .35 | .38 | .36 | .34 | .36 | .31 | .30 | .00 | .34 | .25 | .23 | .31 | .34 | 1.00 | | | | | |
| **29** | .24 | .15 | .30 | .17 | .22 | .05 | .31 | .20 | .17 | .18 | .18 | .19 | .45 | .26 | .31 | .29 | .24 | .26 | .20 | .24 | .21 | .02 | .43 | .23 | .22 | .20 | .25 | .43 | 1.00 | | | | |
| **30** | .24 | .23 | .28 | .32 | .21 | .29 | .29 | .24 | .37 | .19 | .32 | .30 | .20 | .27 | .30 | .33 | .43 | .27 | .40 | .27 | .32 | .03 | .16 | .38 | .32 | .37 | .54 | .32 | .23 | 1.00 | | | |
| **31** | .29 | .23 | .31 | .22 | .38 | .38 | .30 | .21 | .26 | .18 | .19 | .18 | .05 | .26 | .37 | .31 | .21 | .34 | .37 | .31 | .30 | .08 | .08 | .21 | .20 | .28 | .23 | .23 | .17 | .28 | 1.00 | | |
| **32** | .38 | .25 | .47 | .23 | .40 | .25 | .63 | .19 | .27 | .14 | .33 | .18 | .21 | .30 | .42 | .40 | .30 | .41 | .48 | .39 | .33 | .07 | .29 | .33 | .29 | .36 | .35 | .43 | .33 | .32 | .31 | 1.00 | |
| **33** | .34 | .28 | .41 | .23 | .36 | .27 | .47 | .25 | .28 | .16 | .36 | .23 | .20 | .30 | .41 | .44 | .38 | .40 | .46 | .41 | .41 | .05 | .26 | .39 | .31 | .42 | .46 | .41 | .27 | .41 | .28 | .52 | 1.00 |

* Correlations ≥ |± .10| are statistically significant to 5%.

### Data analysis

First, distribution of the different measures applied was calculated, and then careless responding from participants in the PPF-A were detected. Second, the internal structure of the PPF-A test was analyzed using a Confirmatory Factor Analysis with the AMOS V. 7.0 program (Arbuckle, 2006). Three types of goodness-of-fit indices were used: 1) Absolute fit indices to see if the model fit the empirical data: the index $\chi^2/df$ (Bentler & Bonett, 1980), whose values below 3 indicate a good fit; the Goodness-of-Fit Index (GFI) (Jöreskog & Sörbom, 1993), with values > .95 considered a good fit; the Standardized Root Mean Square (SRMR) (Hu & Bentler, 1999), with values < .08 indicating a good fit (Hair et al., 1999); 2) the incremental fit index to compare the model obtained with the null model used was the Normed Fit Index (NFI) (Bentler & Bonett, 1980), which with values > .95 indicates a good fit; and 3) the parsimony-based fit indices that penalize models with many parameters used were: the Parsimony Goodness-of-Fit Index (PGFI) (Jöreskog & Sörbom, 1993) and the Parsimony Normed Fit Index (PNFI) (James et al., 1982), both with values > .50 indicating good fit. Third, the internal consistency of the factors obtained in the PPF-A and the temporal stability were calculated by correlating the test and retest measurement. Regarding the recommended sample size for this type of model, Hair et al. (1999) recommend 10 participants per parameter, and 15 if the data is not distributed normally. In this model, with the number of parameters being 77 for a sample size of 1,858, we obtain: 1,858/77 = 24.12 ≈ 21 participants per parameter, clearly higher than the minimum recommended. Furthermore, we estimated the minimum sample size assuming a statistical power of 0.80, an effect size ($f^2$) of 0.35 and a significance level of 0.05 using the procedure of Moshagen and Bader (2023), obtaining a minimum size of 10 participants for the 484 df and 33 observed variables.

Fourth, the internal consistency of the scale and subscales was calculated with Cronbach's alpha and McDonald's omega. Temporal stability (test-retest) was calculated by correlating the two applications of the scale. Fifth, Pearson correlations were calculated between the test factors and the other measures collected to analyze evidence of convergent and discriminant validity. Sixth, a confirmatory model was done with AMOS V. 7.0 to see the predictive power of the PPF-A on clinical symptoms. This model was estimated with 1,077 participants and with 29 parameters, thus 1,077/29 = 37.14 ≈ 37 participants for each parameter, clearly above the recommended minimum of 15. Also, we estimated the minimum sample size assuming a statistical power of .80, an effect size ($f^2$) of 0.35 and a significance level of 0.05, obtaining a minimum size of 191 participants for the 76 *df* and 14 observed variables. Seventh, differences in the test scales were analyzed with independent-measures ANOVA (sex and period of adolescence). And finally, the test scales were calculated.

All analyses, except those indicated, were performed with the SPSS V. 18 statistical package.

## Results

*Distribution of variables.* Table 2 shows the PPF-A test items, the descriptive statistics and their distribution. Table 3 shows the Pearson correlations between the different items of the PPF-A. And in Table 4 are descriptions of the different measures along with their reliability. Personality factors had to be typified in order to group them, as in some cases the BFQ-NA test was applied and in others the NEO-FFI, due to the different ages of the participants. As can be seen in Tables 2 and 4, the test items and the rest of the measures present a normal distribution with values of 2 in skewness and 7 in kurtosis, in absolute value (West et al., 1995).

We also attempted to detect the presence of careless responding in the participants in the PPF-A. For this purpose, following the recommendations of Niessen et al. (2016), the even-odd consistency index and the Mahalanobis distance were calculated. The even-odd consistency index was obtained by dividing the test into odd-odd pairs and the internal consistency for Guttman equivalent forms was calculated, obtaining a value of .925 for the 33 items, a Cronbach's alpha of .873 for the odd items and .825 for the even items, and a correlation between the two parts of .867. These values rule out the possibility of careless responding from participants by presenting very high internal consistency values (≥ .70) (Abad et al., 2011). Regarding the Mahalanobis distance for the 33 items on the questionnaire, only 5.27% presented values distant from the center ($p < .001$) (Hair et al., 1999), so there did not seem to be careless responding in the participants.

**Table 4**
*Descriptive statistics, distribution and reliability of the tests administered.*

| Measures | *n* | *M* | *SD* | Asymmetry | Kurtosis | Cronbach's alpha | McDonald's omega | Standard error of measurement | Test-retest |
|---|---|---|---|---|---|---|---|---|---|
| Self-esteem (PPF-A) | 1858 | 11.84 | 2.80 | -0.87 | 0.29 | .85 | .85 | 1.08 | .65 |
| Resilience (PPF-A) | 1858 | 11.63 | 2.26 | -0.49 | 0.08 | .65 | .66 | 1.34 | .47 |
| Curiosity (PPF-A) | 1858 | 11.37 | 2.38 | -0.57 | 0.27 | .73 | .73 | 1.24 | .47 |
| Optimism (PPF-A) | 1858 | 10.86 | 2.54 | -0.38 | -0.27 | .70 | .71 | 1.39 | .58 |
| Autonomy (PPF-A) | 1858 | 10.91 | 2.34 | -0.42 | -0.01 | .59 | .59 | 1.50 | .51 |
| Vitality (PPF-A) | 1858 | 11.23 | 2.49 | -0.49 | -0.08 | .76 | .77 | 1.22 | .64 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Environmental mastery (PPF-A) | 1858 | 9.59 | 2.44 | -0.05 | -0.26 | .43 | .48 | 1.84 | .54 |
| Purpose in life (PPF-A) | 1858 | 12.51 | 2.14 | -0.83 | 0.37 | .74 | .74 | 1.09 | .52 |
| Humor (PPF-A) | 1858 | 12.12 | 2.33 | -0.69 | 0.24 | .69 | .69 | 1.30 | .45 |
| Enjoyment (PPF-A) | 1858 | 11.39 | 2.31 | -0.58 | 0.31 | .68 | .68 | 1.31 | .53 |
| Creativity (PPF-A) | 1858 | 10.81 | 2.33 | -0.27 | -0.04 | .64 | .65 | 1.40 | .51 |
| PPF-A Total | 1858 | 11.29 | 1.65 | -0.38 | 0.20 | .89 | .95 | 0.55 | .64 |
| Positive Affect (PANAS) | 1858 | 35.09 | 5.40 | -0.23 | 0.37 | .75 | | | |
| Negative Affect (PANAS) | 1858 | 26.67 | 6.78 | -0.05 | -0.29 | .84 | | | |
| SWLS | 1634 | 19.26 | 3.99 | -0.65 | 0.07 | .87 | | | |
| Psychological Well-Being | 374 | 105.81 | 15.35 | -0,48 | 0,13 | .80 | | | |
| Conscientiousness | 1817 | 0.00 | 1.00 | -0.21 | -0.24 | .87 | | | |
| Openness to experience | 1817 | 0.00 | 1.00 | -0.21 | -0.26 | .82 | | | |
| Extraversion | 1817 | 0.00 | 1.00 | -0.51 | 0.11 | .74 | | | |
| Agreeableness | 1817 | 0.00 | 1.00 | -0.24 | -0.19 | .83 | | | |
| Neuroticism | 1817 | 0.00 | 1.00 | 0.26 | -0.34 | .82 | | | |
| DASS-21 | 1077 | 0.00 | 0.95 | 0.40 | -0.62 | .89 | | | |

*Note.* PPF-A, Positive Psychological Functioning Scale in Adolescents; PANAS, Positive and Negative Affect Schedule; SWLS, Satisfaction With Life Scale; DASS-21, Depression Anxiety Stress Scale.

*Evidence of validity of internal structure.* The hierarchical confirmatory factor model (see Figure 1) was estimated using unweighted least squares as multivariate normality was not present: Bollen-Stine bootstrapping (Bollen & Stine, 1993) ($p$ = .005) was used and kurtosis was clearly higher than 7 (266.26). The fit indices were: $\chi^2(77)$ = 2839.15, $p$ < .001, $\chi^2/df$ = 40.26, GFI = .966, NFI = .966, SRMR = .053, PGFI = .842 and PNFI = .886, indicating a good fit of the model to the data in most of the indices. All factorial weights, except for Item 22, are higher than the recommended minimum of 0.40 (Hair et al., 1999), with the vitality dimension (.90) contributing the most to the general factor and humor contributing the least (.54). Thus, a hierarchical structure of the test is confirmed.

*Evidence of reliability.* Cronbach's alpha and McDonald's omega and the standard error of measurement were calculated for each dimension and for the total of the scale. Table 4 shows the results with values between .43 and .95. There are only two dimensions with low reliability: environmental mastery (α = .43, ω = .48) and autonomy (α = .59, ω = .59), the rest have values close to or greater than .70 as recommended (Abad et al., 2011). If we analyze the correlation of each item with the total of the scale to which it belongs (see Table 2), there is only one item with a value < .20: Item 22 of environmental mastery. Therefore, internal discrimination in each dimension is high (Abad et al., 2011). It was not considered suitable to remove environmental mastery as its contribution to the general factor is high ($r$ = .73).

The temporal stability of each test dimension was also calculated by correlating the results of applying the test twice to the same participants with an interval of three months. Only 853 participants responded the second time: 49.0% women and an average age of 12.27 years ($SD$ = 1.82 years). Table 2 shows the results with correlations between 0.45 and 0.65 between both points in time, reflecting average stability of the measure.

*Evidence of convergent and discriminant validity.* Table 5 shows the Pearson correlations between the PPF-A and the different measures included in the study. In bold are the ≥ |± .30|, which are those that at least show a low effect size according to Cohen (1988) in order to be taken into account. The test shows convergence with satisfaction with life (SWLS) with mean correlations ($r$ ≥ .33) with almost all the dimensions and discrimination with humor ($r$ = .18) and creativity ($r$ = .23). There is convergence with psychological well-being and discrimination between creativity and psychological well-being ($r$ = .19). There is convergence between PPF-A and positive affect except for environmental mastery ($r$ = .25) and humor ($r$ = .22), which would discriminate. Discrimination occurs with negative affect, except for self-esteem ($r$ = -.33) and environmental mastery ($r$ = -.30), which converge with this measure. In regard to personality, there is greater convergence between PPF-A and extraversion, followed by conscientiousness and agreeableness, and greater discrimination in relation to openness and neuroticism, even though in the case of the total score of the scale this converges with the five measures of personality ($r$ ≥ |± .37|).

*Evidence of predictive validity.* A model of structural equations was considered using an unweighted least squares estimate, as multivariate normality was not present (kurtosis = 43.68) to see the predictive role of the test on the clinical symptoms obtained with the DASS-21. Figure 2 shows the verified model which presents a suitable degree of fit: $\chi^2(29)$ = 127798.40, $p$ < .001, $\chi^2/df$ = 4406.84, GFI = .980, NFI = .975, SRMR = .100, PGFI = .713 and PNFI = 0.814. Most of the goodness-of-fit indices reflect a good fit of the model to the data. The PPF-A succeeds in explaining a 17% ($R^2$ = .17) clinical symptomatology of those evaluated in such a way that the better the psychological functioning, the lower this symptomatology will be ($r$ = -.41).

**Figure 1**
*Hierarchical confirmatory factorial model of the PPF-A scale*

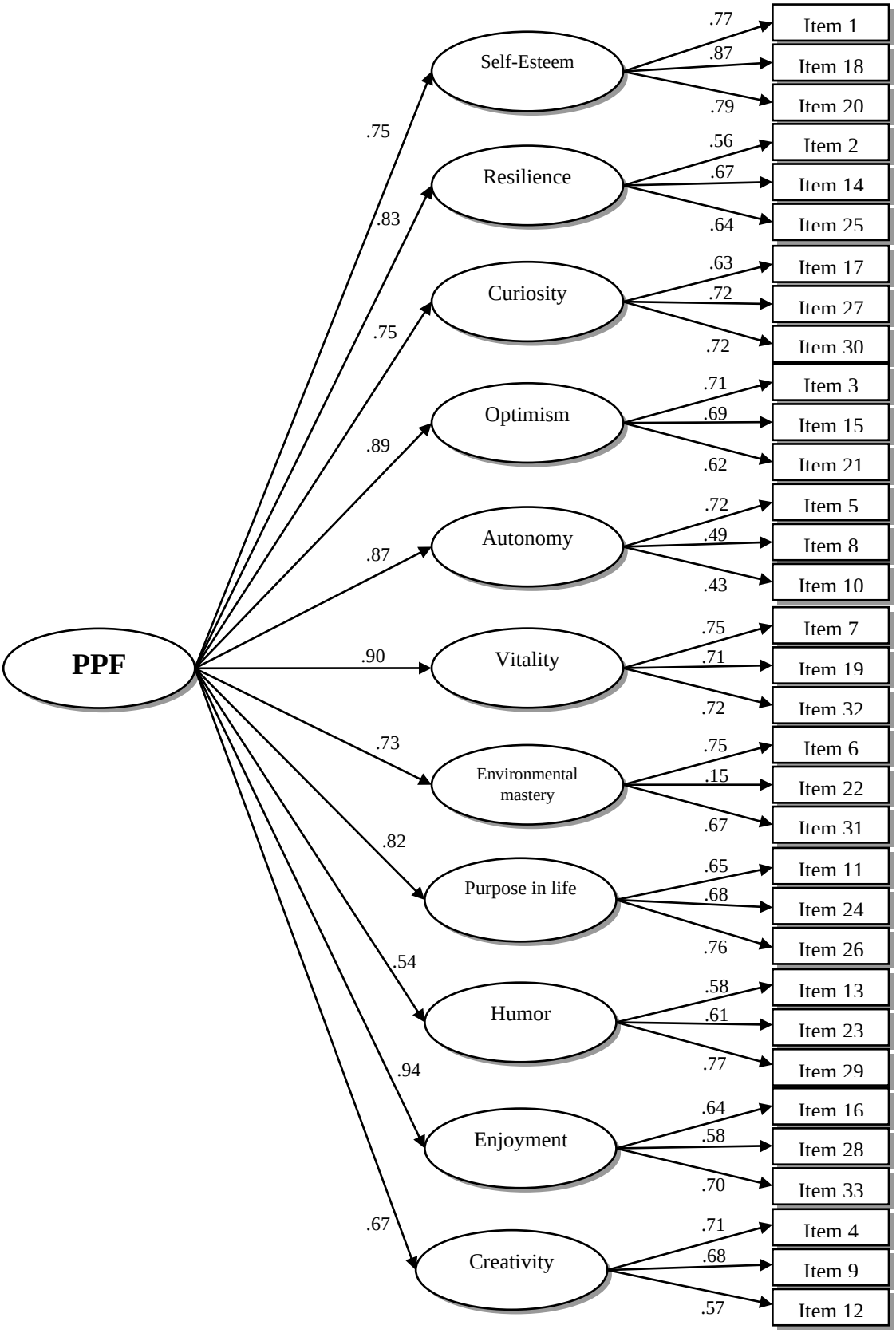
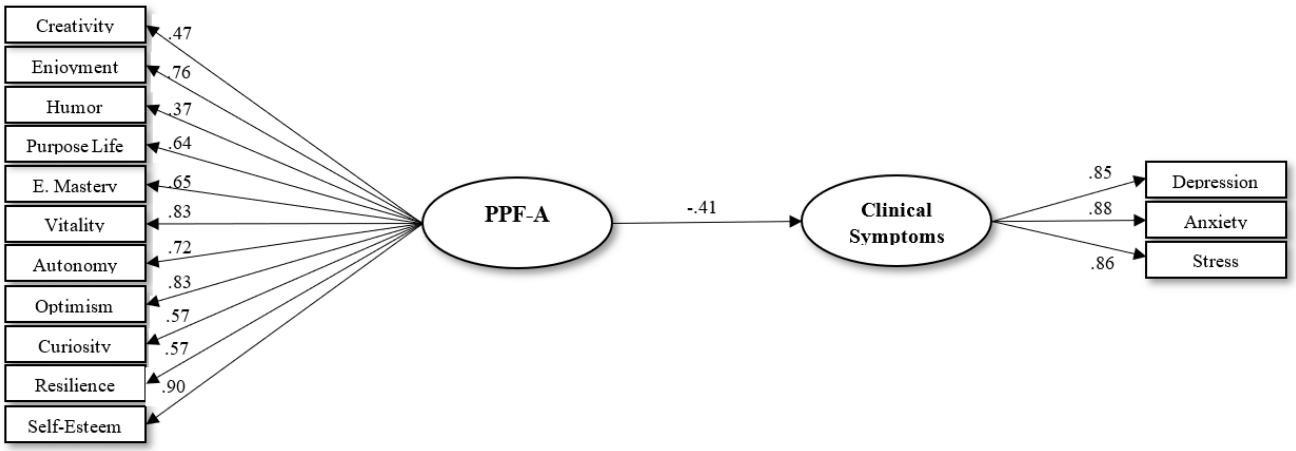


**Table 5**
*Pearson correlations between PPF-A and the rest of the measures.*

| PPF-A measures | Positive Affect (PANAS) | Negative Affect (PANAS) | SWLS | Psychological Well-Being | Agreeableness | Openness to experience | Extraversion | Agreeableness | Neuroticism |
|---|---|---|---|---|---|---|---|---|---|
| Self-esteem | **.35** | **-.33** | **.61** | **.69** | .28 | .23 | **.39** | .27 | **-.41** |
| Resilience | **.36** | -.12 | **.34** | **.55** | **.31** | .28 | **.35** | .29 | -.21 |
| Curiosity | **.42** | -.04 | **.33** | **.34** | **.39** | **.42** | **.37** | **.34** | -.15 |
| Optimism | **.37** | -.29 | **.50** | **.54** | **.32** | .23 | **.43** | **.34** | **-.39** |
| Autonomy | **.30** | -.21 | **.38** | **.60** | .25 | .25 | **.30** | .21 | -.28 |
| Vitality | **.53** | -.22 | **.51** | **.49** | **.40** | .28 | **.53** | **.34** | **-.30** |
| Environmental mastery | .25 | **-.30** | **.38** | **.36** | **.50** | .28 | .23 | .22 | **-.36** |
| Purpose in life | **.40** | -.10 | **.40** | **.58** | **.42** | **.32** | **.36** | **.32** | -.17 |
| Humor | .22 | .00 | .18 | **.42** | .09 | .10 | **.37** | .22 | -.09 |
| Enjoyment | **.45** | -.18 | **.47** | **.46** | **.32** | .26 | **.47** | **.36** | -.25 |
| Creativity | **.33** | -.09 | .23 | .19 | .29 | **.32** | .29 | .26 | -.16 |
| Total | **.52** | -.26 | **.58** | **.75** | **.47** | **.39** | **.54** | **.42** | **-.37** |
| *n* | 1858 | 1858 | 1634 | 374 | 1817 | 1817 | 1817 | 1817 | 1817 |

* Correlations ≥ |± .10| are statistically significant to 5%.

**Figure 2**
*Predictive Model of the PPF-A on Clinical Symptoms (DASS-21).*




*Evidence of differential validity.* We tested for differences in the dimensions of the PPF-A based on sex and the period of adolescence (early, middle and late) using an ANOVA with two independent factors. The main results are shown in Table 6. Although the assumption of homoscedasticity is not met, it is important to remember that the ANOVA is very robust as to its unfulfillment if the N of each group are similar (Pardo & San Martin, 2010), as in the present case. Although there are statistically significant differences in the different effects (Adolescence, Sex and Interaction), the effect sizes are low. According to Cohen (1992), $\eta^2_{parcial}$ values of .01 are low, .06 are medium and .14 are high. The highest $\eta^2_{parcial}$ appears for environmental mastery for the effect of Adolescence (.034), being quite low. For this reason, there is no evidence of substantial differences according to the two factors considered.

*Scales.* The centile scores were calculated for the different direct scores of each dimension and for the total of the test, as well as the transformed scores $Z_{normalized}$ and $T$ ($M$ = 50, $SD$ = 10) (see Table 7) to allow interpretation of the results obtained by administering the test. Since there was no evidence of differential validity, calculations were made for the entire sample.

**Table 6**
*Results of the ANOVA of independent measures for PPF-A based on sex and periods of adolescence.*

| Measure | Adolescence | Sex | Interaction | Levene's test |
|---|---|---|---|---|
| Self-esteem | $F_{2,1852} = 9.03$, $p < .001$, $\eta^2_{partial} = .010$ | $F_{1,1852} = 18.22$, $p < .001$, $\eta^2_{partial} = .010$ | $F_{2,1852} = 9.88$, $p < .001$, $\eta^2_{partial} = .011$ | $F_{5,1852} = 15.96$, $p < .001$ |
| Resilience | $F_{2,1852} = 0.25$, $p = .779$, $\eta^2_{partial} = .000$ | $F_{1,1852} = 0.79$, $p = .375$, $\eta^2_{partial} = .000$ | $F_{2,1852} = 8.46$, $p < .001$, $\eta^2_{partial} = .009$ | $F_{5,1852} = 7.22$, $p < .001$ |
| Curiosity | $F_{2,1852} = 6.66$, $p = .001$, $\eta^2_{partial} = .007$ | $F_{1,1852} = 0.04$, $p = .852$, $\eta^2_{partial} = .000$ | $F_{2,1852} = 0.99$, $p = .371$, $\eta^2_{partial} = .001$ | $F_{5,1852} = 6.03$, $p < .001$ |
| Optimism | $F_{2,1852} = 1.13$, $p < .001$, $\eta^2_{partial} = .011$ | $F_{1,1852} = 0.54$, $p = .464$, $\eta^2_{partial} = .000$ | $F_{2,1852} = 11.72$, $p < .001$, $\eta^2_{partial} = .012$ | $F_{5,1852} = 4.53$, $p < .001$ |
| Autonomy | $F_{2,1852} = 0.50$, $p = .605$, $\eta 2_{partial} = .001$ | $F_{1,1852} = 1.71$, $p = .001$, $\eta 2_{partial} = .006$ | $F_{2,1852} = 6.86$, $p = .001$, $\eta 2_{partial} = .007$ | $F_{5,1852} = 5.82$, $p < .001$ |
| Vitality | $F_{2,1852} = 27.44$, $p < .001$, $\eta 2_{partial} = .029$ | $F_{1,1852} = 1.81$, $p = .179$, $\eta 2_{partial} = .001$ | $F_{2,1852} = 5.01$, $p = .007$, $\eta 2_{partial} = .005$ | $F_{5,1852} = 3.10$, $p = .009$ |
| Environmental mastery | $F_{2,1852} = 32.57$, $p < .001$, $\eta 2_{partial} = .034$ | $F_{1,1852} = 1.34$, $p = .247$, $\eta 2_{partial} = .001$ | $F_{2,1852} = .076$, $p = .470$, $\eta 2_{partial} = .001$ | $F_{5,1852} = 2.24$, $p = .048$ |
| Purpose in life | $F_{2,1852} = .021$, $p = .808$, $\eta 2_{partial} = .000$ | $F_{1,1852} = 1.84$, $p = .176$, $\eta 2_{partial} = .001$ | $F_{2,1852} = 0.93$, $p = .397$, $\eta 2_{partial} = .001$ | $F_{5,1852} = 6.32$, $p < .001$ |
| Humor | $F_{2,1852} = 21.56$, $p < .001$, $\eta 2_{partial} = .023$ | $F_{1,1852} = .08$, $p = .781$, $\eta 2_{partial} = .000$ | $F_{2,1852} = 0.70$, $p = .498$, $\eta 2_{partial} = .001$ | $F_{5,1852} = 2.53$, $p = .027$ |
| Enjoyment | $F_{2,1852} = 11.98$, $p < .001$, $\eta 2_{partial} = .013$ | $F_{1,1852} = 0.17$, $p = .679$, $\eta 2_{partial} = .000$ | $F_{2,1852} = 1.61$, $p = .201$, $\eta 2_{partial} = .002$ | $F_{5,1852} = 3.71$, $p = .002$ |
| Creativity | $F_{2,1852} = 11.38$, $p < .001$, $\eta 2_{partial} = .012$ | $F_{1,1852} = 2.92$, $p = .088$, $\eta 2_{partial} = .002$ | $F_{2,1852} = 0.15$, $p = .860$, $\eta 2_{partial} = .000$ | $F_{5,1852} = 8.12$, $p < .001$ |
| PPF-A Total | $F_{2,1852} = 7.94$, $p < .001$, $\eta 2_{partial} = .008$ | $F_{1,1852} = 3.57$, $p = .059$, $\eta 2_{partial} = .002$ | $F_{2,1852} = 5.42$, $p = .005$, $\eta 2_{partial} = .006$ | $F_{5,1852} = 17.63$, $p < .001$ |

**Table 7**
*Scales of the 11 dimensions and of the total of the PPF-A*

| Self-Esteem | Resilience | Curiosity | Optimism | Autonomy | Vitality | Environmental mastery | Purpose in life | Humor | Enjoyment | Creativity | FPP Global | Centil | $Z_x$ | $T$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 5 | 5 | 5 | 5 | 5 | 4 | 6 | 6 | 5 | 5 | 6.82 | 1 | -2.33 | 26.70 |
| 6 | 8 | 7 | 6 | 7 | 7 | 6 | 8 | 8 | 7 | 7 | 8.36 | 5 | -1.64 | 33.60 |
| 8 | 9 | 8 | 7 | 8 | 8 | 6 | 9 | 9 | 8 | 8 | 9.09 | 10 | -1.28 | 37.20 |
| 9 | 9 | 9 | 8 | 9 | 9 | 7 | 10 | 10 | 9 | 8 | 9.64 | 15 | -1.04 | 39.60 |
| 10 | 10 | 9 | 9 | 9 | 9 | 8 | 11 | 10 | 10 | 9 | 10.00 | 20 | -0.84 | 41.60 |
| 10 | 10 | 10 | 9 | 9 | 10 | 8 | 11 | 11 | 10 | 9 | 10.27 | 25 | -0.67 | 43.30 |
| 11 | 11 | 10 | 10 | 10 | 10 | 8 | 12 | 11 | 10 | 10 | 10.45 | 30 | -0.52 | 44.80 |
| 11 | 11 | 11 | 10 | 10 | 10 | 9 | 12 | 11 | 11 | 10 | 10.73 | 35 | -0.39 | 46.10 |
| 12 | 11 | 11 | 10 | 10 | 11 | 9 | 12 | 12 | 11 | 10 | 11.00 | 40 | -0.25 | 47.50 |
| 12 | 11 | 11 | 11 | 11 | 11 | 9 | 12 | 12 | 11 | 11 | 11.18 | 45 | -0.13 | 48.70 |
| 12 | 12 | 12 | 11 | 11 | 11 | 10 | 13 | 12 | 12 | 11 | 11.36 | 50 | 0.00 | 50.00 |
| 13 | 12 | 12 | 11 | 11 | 12 | 10 | 13 | 13 | 12 | 11 | 11.64 | 55 | 0.13 | 51.30 |
| 13 | 12 | 12 | 12 | 12 | 12 | 10 | 13 | 13 | 12 | 11 | 11.82 | 60 | 0.25 | 52.50 |
| 13 | 13 | 12 | 12 | 12 | 12 | 11 | 14 | 13 | 12 | 12 | 12.00 | 65 | 0.39 | 53.90 |
| 14 | 13 | 13 | 12 | 12 | 13 | 11 | 14 | 14 | 13 | 12 | 12.18 | 70 | 0.52 | 55.20 |
| 14 | 13 | 13 | 13 | 13 | 13 | 11 | 14 | 14 | 13 | 12 | 12.45 | 75 | 0.67 | 56.70 |
| 15 | 14 | 13 | 13 | 13 | 14 | 12 | 15 | 15 | 13 | 13 | 12.73 | 80 | 0.84 | 58.40 |
| 15 | 14 | 14 | 14 | 13 | 14 | 12 | 15 | 15 | 14 | 13 | 12.92 | 85 | 1.04 | 60.40 |
| 15 | 15 | 14 | 14 | 14 | 14 | 13 | 15 | 15 | 14 | 14 | 13.36 | 90 | 1.28 | 62.80 |
| 15 | 15 | 15 | 15 | 15 | 15 | 14 | 15 | 15 | 15 | 15 | 13.91 | 95 | 1.64 | 66.40 |
| 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 14.64 | 99 | 2.33 | 73.30 |
| *M* 11.84 | 11.63 | 11.37 | 10.86 | 10.91 | 11.23 | 9.59 | 12.51 | 12.12 | 11.39 | 10.81 | 11.29 | | 0.00 | 50.00 |
| *SD* 2.80 | 2.26 | 2.38 | 2.54 | 2.34 | 2.49 | 2.44 | 2.14 | 2.33 | 2.31 | 2.33 | 1.65 | | 1.00 | 10.00 |

## Discussion

In this study, the PPF test by Merino & Privado (2015b), which measures psychological functioning, has been adapted to a Spanish adolescent population. In a sample of 1,858 adolescents aged 10 to 21 years, a hierarchical structure has been obtained consisting of a second-order factor that explains 11 other first-order factors, each one of these having three items that suitably fit the data. The internal consistency of the dimensions generally has appropriate values for most of the dimensions and has a value of 0.87 (Cronbach's alpha) and 0.95 (McDonald's omega) for the entire scale. In addition, there is evidence of the test's temporal stability after three months from the first administration with mean values (*r* between .45 and .65). The test shows suitable convergence with previous measures of satisfaction with life, psychological well-being, positive affect, extraversion, conscientiousness and agreeableness. And it discriminates essentially with negative affect, neuroticism and openness to experience. With regard to its predictive validity, it manages to explain 17% of the clinical symptomatology of those evaluated. There are no differences in scale based on sex and the period of adolescence used. Therefore, it is a test that shows suitable psychometric properties and could be used in adolescents up to 21 years of age to measure psychological well-being, covering a gap that is seen in the PPF test for adults.

These results indicate that a test for psychological well-being can predict an individual's mental health (Diener & Chan, 2011; Martín-María et al., 2017) even in adolescence, one of the stages with the most psychological changes in a human being's life (Eryilmaz, 2012; Sawyer et al., 2018; WHO, 1965; 1977; Zaky, 2016), and thus help predict future psychological problems present in this developmental stage, such as depression (Oliva, 2003) and suicide (www.unicef.org).

Our results with adolescents coincide with previous studies in achieving a hierarchical factorial structure in adults with a psychological well-being test with the presence of a general factor of well-being in Spain (Merino & Privado 2015a, 2015b), Mexico (Merino et al., 2015) and Portugal (Oliveira et al., 2018). Similarly, in adolescents we obtain convergence between PPF-A and other measures of satisfaction with life (SWLS) (Merino & Privado 2015a, 2015b, 2020; Merino et al., 2015, 2021; Oliveira et al., 2018; Valderrama, 2021), psychological well-being (Merino et al., 2015), positive affect (PANAS) (Merino & Privado 2015b, 2020; Merino et al., 2015, 2021) and personality (extraversion and conscientiousness) (Merino et al., 2015). Nevertheless, in our study there is a convergence between agreeableness and PPF-A that had not been previously found (Merino et al., 2015). This result could be due to cultural differences between the samples (Mexico vs. Spain) and between the ages (adults vs. adolescents). Nevertheless, future research should test this hypothesis.

In regard to discrimination in the PPF-A test, the results run contradictory to the literature. There are previous studies in adults in which the relationship with negative affect is low, as in the present study (Merino et al., 2021), but there are others in which this relationship is high (Merino & Privado 2015b, 2020; Merino et al., 2015). We should take into consideration that the negative affect distribution curve in the adolescent sample has a slight asymmetry to the left and less concentration of cases in the center (see Table 2), which could cause the decreased correlation. Where we indeed coincide with previous studies is in the scarce relationship between the test and openness to experience (Merino et al., 2015). Finally, our results in adolescents coincide in the prediction of clinical symptoms (Merino & Privado 2015b; Merino et al., 2019). These results indicate that the trait measured by the test is not so different in adults and adolescents, except for exceptions in the relationships with agreeableness, neuroticism and negative affect.

Among the limitations of the study presented, it is worth noting that the sample was not randomly drawn from the population. Even so, its size is considerable, it is equal in the percentage of both sexes, there are participants from different educational levels and from the three periods of adolescence and, to a certain extent, the results could be extrapolated to a population of adolescents between 10 and 21 years of age. In addition, some subscales do not present values of at least 0.70 internal consistency, so we recommend using the value of the total scale as an indicator of accuracy and using the unreliable subscales cautiously when interpreting them. In addition, the temporal stability does not reach high values, which indicates that this is a measure that can change over time.

It would be interesting for future lines of research to investigate the predictive role of psychological well-being in academic performance, as this is often one of the most commonly used criteria in people who are of school age, as in the case of adolescents.

## Complementary information

**Conflict of interest.-** No potential conflict of interest was reported by the authors.

**Financial support:** Grant "Cognitive (intelligence and aptitudes) and Non-Cognitive (personality and well-being) factors in the prediction of Academic Performance". (Reference: PID2022-140411NB-I00; financed by MCIN/AEI/10.13039/501100011033/ FEDER, UE).

## References

Abad, F. J., Olea, J., Ponsoda, V., & García, C. (2011). *Medición en ciencias sociales y de la salud [Measurement in health and social sciences]*. Síntesis.

Ahmad Al-Jinadi, L., & Linah. (2018). Eficacia del programa de formación para el desarrollo positivo y su efecto en la integración de las alumnas de la Universidad Al-Qassim (estudio semiexperimental) [Effectiveness

of the positive development training program and its effect on the integration of female students at Al-Qassim University (semi-experimental study)]. *Revista de Educación (Asiut), 34*(12.2), 484-533.

Arbuckle, J. L. (2006). *Amos 7.0 User's Guide*. SPSS. https://bit.ly/3AN7lMy

Atienza, F. L., Pons, D., Balaguer, I., & García-Merita, M. (2000). Propiedades psicométricas de la Escala de Satisfacción con la Vida en adolescentes [Psychometric properties of the Satisfaction with Life Scale in adolescents]. *Psicothema*, *12*(2), 314-319.

Barbaranelli, C., Caprara, G. V., & Rabasca, A. (2006). *BFQ-NA: cuestionario" Big Five" de personalidad para niños y adolescentes [BFQ-NA: "Big Five" personality questionnaire for children and adolescents]*. TEA Ediciones.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588-606. https://doi.org/10.1037/0033-2909.88.3.588

Bollen, K. A., & Stine, R. A., 1993. Bootstrapping goodness-of-fit measures in structural equation models. In K. A. Bollen and J. S. Long (Eds.), *Testing structural equation model*s (pp. 111-135). Sage.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2ª ed). Academic Press.

Cohen, J. (1992). A power primer. *Psychological bulletin*, *112*(1), 155-159.

Costa, P. T., & McCrae, R. R. (1989). NEO five-factor inventory (NEO-FFI). *Psychological Assessment Resources, 3*.

Díaz, D., Rodríguez-Carvajal, R., Blanco, A., Moreno-Jiménez, B., Gallardo, I., Valle, C., & van Dierendonck, D. (2006). Adaptación española de las escalas de bienestar psicológico de Ryff [Spanish adaptation of Ryff's psychological well-being scales]. *Psicothema, 18*, 572-577.

Diener, E., & Chan, M. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being, 3*(1), 1-43. https://doi.org/10.1111/j.1758-0854.2010.01045.x

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Eryılmaz, A. (2012). A model of subjective well-being for adolescents in high school. *Journal of Happiness Studies, 13*(2), 275-289. https://doi.org/10.1007/s10902-011-9263-9

Esteban-Gonzalo, L., Esteban-Gonzalo, S., Esteban-Cornejo, I., Izquierdo-Gómez, R., Padilla-Moledo, C., Castro-Piñero, J., & Veiga, O. L. (2020). Wellbeing as a Protective Factor of Adolescent Health. The Up & Down Study. *Child Indicators Research, 13*(4), 1453-1467. https://doi.org/10.1007/s12187-019-09711-w

Flick, U. (2018). *An introduction to qualitative research* (5th ed.). Sage. https://doi.org/cutt.ly/sLkEhQP

Fuentes, N. I. G. A. L., & Medina, J. L. V. (2015). Validez de las escalas de afecto positivo y negativo (PANAS) en niños. [Validity of the positive and negative affect scales (PANAS) in children]. *LIERABIT. Revista Peruana de Psicología*, *21*(1), 37-47.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1999). *Multivariate analysis*. Prentice Hall.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. Review of *General Psychology, 6*(4), 307–324.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. https://bit.ly/3aAtymd

Iglesias, A. E. V., Moroni, C. M., & Antonio, R. R. (2020). Validación del funcionamiento psicológico positivo en una población cubana. una nueva visión del bienestar integral [Validation of positive psychological functioning in a Cuban population. a new vision of comprehensive well-being]. *Alternativas cubanas en Psicología*, 10(28), 33-40.

James, L. R., Mulaik, S. A., & Brett, J. M. (1982). *Causal analysis: models, assumptions and data*. Sage.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: user's guide*. Scientific Software International.

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales*. Psychology Foundation.

Martín-María, N., Miret, M., Caballero, F. F., Rico-Uribe, L. A., Steptoe, A., Chatterji, S., & Ayuso-Mateos, J. L. (2017). The impact of subjective well-being on mortality: a meta-analysis of longitudinal studies in the general population. *Psychosomatic medicine, 79*(5), 565-575. http://doi.org/10.1097/PSY.0000000000000444

Merino, M.D., Sánchez-Ortega, M., Elvira-Flores, E., & Mateo-Rodríguez, I. (2023). Centenary Personality: Are There Psychological Resources that Distinguish Centenarians?. *Journal of Happiness Studies*, 24(8), 2723-2745.

Merino, M. D., Oliver-Hernández, C., Vallellano, M. D., & Mateo, I. (2020). Is it possible to find something positive in being confined due to COVID-19? Implications for well-being. *International Journal of Environmental Research and Public Health*, *17*(23), 9087.

Merino, M. D., & Privado, J. (2015a). Does Employee Recognition Affect Positive Psychological Functioning and Well-Being? *Spanish Journal of Psychology, 18, e64*, 1–7. https://doi.org/10.1017/sjp.2015.67

Merino, M. D., & Privado, J. (2015b). Positive Psychological Functioning. Evidence for a new construct and its measurement. [Funcionamiento psicológico positivo. Evidencia para un nuevo constructo y su medición]. *Anales de Psicología/Annals of Psychology, 31*(1), 45-54. http://dx.doi.org/10.6018/analesps.31.1.171081

Merino, M. D., & Privado, J. (2020). Is Love Triarchic or Monarchical-Hierarchical? A Proposal of a General Factor of Love and a Scale to Measure it. *The Spanish Journal of Psychology, 23*, eXX. https://doi.org/10.1017/SJP.2020.3

Merino, M. D., Privado, J. & Gracia, Z. (2015). Validación mexicana de la Escala de Funcionamiento Psicológico Positivo. Perspectivas en torno al estudio del bienestar y su medida [Mexican validation of the Positive Psychological Functioning Scale. Perspectives on the study of well-being and its measurement]. *Salud Mental, 38*, 2, 109-115.

Merino, M. D., Privado, J., & Arnaiz, R. (2019). Is There Any Relationship between unemployment in Young Graduates and Psychological Resources? An empirical research from the conservation of resources theory. *Revista de Psicología del Trabajo y de las Organizaciones, 35*(1), 1-8. https://doi.org/10.5093/jwop2019a1

Merino, M. D., Privado, J. P., & Durán, R. (2021). Satisfaction with Life Scale (SWLS) adapted to work: Psychometric Properties of the Satisfaction with Work Scale (SWWS) [Escala de Satisfacción con la Vida (SWLS) adaptada al trabajo: Propiedades Psicométricas de la Escala de Satisfacción con el Trabajo (SWWS)]. *Anales de Psicología/Annals of Psychology, 37*(3), 557-566. https://doi.org/10.6018/analesps.430801

Moshagen, M., & Bader, M. (2023). semPower: General Power Analysis for Structural Equation Models. *Behavior Research Methods* https://doi.org/10.3758/s13428-023-02254-7 .

Niessen, A. S. M., Meijer, R. R., & Tendeiro, J. N. (2016). Detecting careless respondents in web-based questionnaires: Which method to use? *Journal of Research in Personality, 63*, 1-11. https://doi.org/10.1016/j.jrp.2016.04.010

Oliva, A. (2003). Adolescencia en España a principios del siglo XXI [Adolescence in Spain at the beginning of the 21st century]. *Cultura y educación*, *15*(4), 373-383.

Oliveira, E. P., Merino, M. D., Privado, J., & Almeida, L. S. (2018). Escala de Funcionamento Psicológico Positivo: Adaptação e estudos iniciais de validação em universitários Portugueses [Positive Psychological Functioning Scale: Adaptation and initial validation studies with Portuguese college students]. *Revista Iberoamericana de Diagnóstico y Evaluación Psicologica, 48*(3), 151–162. https://doi.org/10.21865/RIDEP48.3.13

Panchal, U., Salazar de Pablo, G., Franco, M., Moreno, C., Parellada, M., Arango, C., & Fusar-Poli, P. (2021). The impact of COVID-19 lockdown on child and adolescent mental health: systematic review. *European child & adolescent psychiatry*, 1-27. https://doi.org/10.1007/s00787-021-01856-w

Pardo Merino, A., & San Martín, R. (2010). *[Data analysis in social and health sciences II]Análisis de datos en ciencias sociales y de la salud II*. Síntesis.

Portela, M. (2021). Estudio preliminar de las propiedades psicométricas de la escala de Funcionamiento Psicológico Positivo para una muestra de adolescentes uruguayos [Preliminary study of the psychometric properties of the Positive Psychological Functioning scale for a sample of Uruguayan adolescents] . *Ciencias Psicológicas*, *15*(1). https://doi.org/10.22235/cp.v15i1.2396

Rahola, R., Garde, T. M., Cozzetti, E., Blaustein, C. L., Cornellà, J., & Granell, C. J. C. S. (2002). La adolescencia: consideraciones biológicas, psicológicas y sociales [Adolescence: biological, psychological and social considerations]. In *Manual de salud reproductiva en la adolescencia [Adolescent*

*Reproductive Health Handbook]* (pp. 27-83). Sociedad Española de Contracepción.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*, 1069-1081. https://doi.org/10.1037/0022-3514.57.6.1069

Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health, 2*(3), 223-228. https://doi.org/10.1016/S2352-4642(18)30022-1

Secu, A. E. (2022). Analiza calităţilor psihometrice ale chestionarului de funcţionare psihologică pozitivă [Analysis of the psychometric qualities of the positive psychological functioning questionnaire]. *Studii şi Cercetări*, *68*(1), 1.

Valderrama, B. (2021). *CTE. Cuestionario de Talento de emprendedor [Entrepreneur Talent Questionnaire]*. GIUNTI Psychometrics.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063.

West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with non-normal variables. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 56-75). Sage.

World Health Organization (WHO) (1965). *Health problems of adolescents. Technical report series 308*. World Health Organization.

World Health Organization (WHO) (1977). *Health needs of adolescents*. World Health Organization.

Zaky, E. A. (2016). Adolescence; a Crucial Transitional Stage in Human Life. *Journal of Child & Adolescent Behavior, 4*, 6, e115. https://doi.org/10.4172/2375-4494.1000e115