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Article

The Dark Side of the Self: When Family is Highly Related to Mental Health Deterioration

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Abstract

This study aims to empirically test whether family has a unique significance for the self that cannot be captured by the social self alone. Specifically, it examines whether family self-concept, compared to social self-concept, is more closely related to family-specific indicators (i.e., parent–child communication and family functioning) as well as to indicators of emotional maladjustment like mental health deterioration (i.e., psychological distress and depressive symptoms). The sample comprised 4,953 Mexican adolescents, including 2,551 men (51.5%) and 2,402 women, aged 14–17 years ($M = 15.60$, $SD = 0.92$). Confirmatory factor analysis was applied to evaluate the proposed big five-dimensional self-concept model. Cohen's *d* confidence intervals, derived from the shared variance of Pearson's *r* correlations, were analyzed to relate self-concept dimensions to parent–child communication, family functioning, and mental health deterioration. Results from factorial confirmatory analysis showed that the five-dimensional oblique model (i.e., academic, social, emotional, physical, and family, as different from social) provided a better fit than competing unidimensional and orthogonal models. Correlation analyses showed that family self-concept was significantly associated with both parent–child communication and family functioning, as well as with psychological distress ($d = -1.10$, confidence interval [CI] −1.21 to −1.02) and depressive symptoms ($d = -1.24$, CI −1.31 to −1.22). These findings add evidence that family is not accurately represented within the social self-concept. Furthermore, perceiving oneself as unloved and undervalued at home (i.e., low family self-concept) is strongly associated not only with dysfunctional family processes but also with mental health deterioration.

Keywords: depressive symptoms; family; mental health; psychological distress; self-concept

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Introduction

Self-concept multidimensional model

Although during decades the individual (i.e., the self) has been studied from different psychological perspectives and terms (i.e., self-awareness, self-construal, self-appraisal, self-esteem, self-concept), including evaluative and descriptive components (Baumeister, 2010; Marsh & Martin, 2011), it is possible that the greatest advance for psychology as a science in this convoluted research field was to conceptualize the self with an empirically contrastable model. In the 1970s, a theoretical model of self-concept that could empirically test deep theoretical problems was defined (Shavelson et al., 1976).

The model proposes that a general (i.e., unidimensional) assessment of the self is situated in the apex and is divided into four domains: the academic, social, emotional, and physical self-concepts (i.e., the classical four-dimensional model). These domains are further split into sub-areas that become more correlated to actual behavior as one moves further down the hierarchy. For example, the physical self-concept domain is split in physical appearance and physical ability sub-areas, assuming that one and the other represent common parts of the physical self and that they are closely related. Although the model had a theoretical dilemma questioning whether it was orthogonal (i.e., independent dimensions) or oblique (i.e., related dimensions), the oblique model received more support (Byrne & Shavelson, 1996; Shavelson et al., 1976). On the one hand, the specificity principle states that each domain of the self-concept will be related to the specific behaviors it represents to a greater degree than the other domains (Martín-Albo et al., 2007; Prentice & Miller, 1992). For example, academic self-concept is more related to academic achievement than the other dimensions (e.g., emotional) or the general self-concept (Byrne, 1984; Marsh et al., 1988; Marsh & Craven, 2006). On the other hand, because of the obliquity of the model, the other dimensions will also be related to those specific behaviors, although to a lesser extent (Brunner et al., 2010; Marsh & Craven, 2006).

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Even though the classical model (Shavelson et al., 1976) is the blueprint for upcoming self-concept studies, there is still debate about the number of dimensions of self-concept (Brown & Alexander, 1991; Coopersmith, 1967; Fitts, 1965; Harter, 1988; Piers & Harris, 1964). This study focuses on an important limitation of the classical big four-dimensional model is that it has not considered the family dimension as the big fifth dimension, differentiable from the social part. In the classical model, the family (i.e., assuming they are significant others) has been considered together with peers as sub-areas within the social dimension (Byrne & Shavelson, 1996; Shavelson et al., 1976). However, family could be more than a subarea of the social dimension (Garcia & Musitu, 1999; Marsh & O'Neill, 1984); it may be that the family plays a specific significance in the self, differentiable from the social part.

Family and the self

Society is the reflection of the family, a basic and primary psychosocial agent. The family (parents or primary caretaker) is the main agent in charge of children's development by teaching attitudes, values, and motives so that they can be functional members of the social community (Climent-Galarza et al., 2022; Gracia et al., 1995; Grusec, 2002). Therefore, the family is responsible for the child to acquire a sense of self and learn to function autonomously in a social community that has its constraints and rules (Maccoby & Martin, 1983; Martinez-Escudero et al., 2020; Steinberg, 2001; Villarejo et al., 2020). Experiences in the family context could affect how adolescents perceive and evaluate themselves (i.e., self-concept). Self-concept is constructed through the interpretation of experiences in significant environments, such as the family (Cooley, 1902; Krauss et al., 2020). Adolescence is a decisive period for the development of the self in which independence is sought, and important social, academic, emotional, and physical challenges are faced (Fuentes et al., 2015; Reyes et al., 2023; Steinberg & Morris, 2001). Parents tend to have a lesser influence than peers (Martin-Blesa et al., 2024; Veiga et al., 2023; Villarejo et al., 2024), while demands and obligations are greater (e.g., in high school), especially in middle and late adolescence, and sometimes adolescents might report certain self-concept and mental health problems (Fall & Roberts, 2012; Young et al., 2019; Zapf et al., 2024). Family processes, particularly parent–child communication and family functioning can either facilitate or undermine the child's development (Cummings et al., 2000; Garcia et al., 2019; Olson et al., 2019).

Parent–child communication is probably one of the most important processes that take place in the family for children to develop their individuality in the social community (Darling & Steinberg, 1993; Martinez et al., 2017; Martinez-Escudero et al., 2023). Responsive parents have open communication with children in an emotional climate based on care, support, love, and acceptance to their children, regardless of their child's behavior (Gimenez-Serrano et al., 2022; Grusec & Lytton, 1988; Martinez et al., 2012). These parents communicate confidence and security to their children by fostering the belief that the child will succeed and is a valuable individual with positive qualities (Chen et al., 2024; Darling & Steinberg, 1993). But equally important is for children to openly communicate with their parents, tell their problems and worries, in a spontaneous way, without fear that they will get angry with them or that their parents will reject them (Keijsers & Poulin, 2013; Kerr et al., 1999). Overall, previous research has noted that adolescents tend to disclose more to their mothers than to their fathers (Keijsers et al., 2010; Smetana et al., 2006; Waizenhofer et al., 2004)

However, family functioning does not only depend on the parent–child relationship. Good family functioning is based on cohesion, characterized by connectedness, care, and support, which enhances healthy interactions among all family members (Kapetanovic & Skoog, 2021; Olson et al., 1979; Segrin & Flora, 2018). For example, marital relations might positively or negatively affect family functioning (Kapetanovic & Skoog, 2021; Koerner & Fitzpatrick, 2002). A good relationship between the spouses is associated with child involvement, which, in turn, positively contributes to the family functioning (Grusec & Lytton, 1988; Knopp et al., 2017; Koerner & Fitzpatrick, 2002).

The dark side of family

Unfortunately, not all family processes have a positive influence on the child's development. Some family processes are dysfunctional, that is, they are characterized by rejection, lack of love, and worthlessness (Alcaide et al., 2023; Lila et al., 2007; Palacios et al., 2022; Steinberg et al., 1994). Dysfunctional family processes have been related to serious disturbances in the self (Lamborn et al., 1991; Van Dijk et al., 2014), probably due to difficulties in the emotion regulation (Baumrind, 1968; Darling & Steinberg, 1993; Kganyago, 2023; Sroufe, 1996). Compared to young adulthood associated with more maturity and less risk taking, adolescents face new demands and requirements (e.g., higher school expectations) that will define their self-concept so that conflicts in the family (e.g., communication problems) sometimes represent a source of discomfort and external conflict that could become internalized and seriously deter their adaptation (Fall & Roberts, 2012; Mañez et al., 2024; Steinberg, 2007; Zapf et al., 2024). A key component of children's successful development is to learn to regulate their emotions and related behaviors in socially appropriate ways (i.e., emotional self-concept) (Darling & Steinberg, 1993; Grusec, 2002). A deterioration in emotion regulation has been linked to depression, anxiety, psychosis, and suicidal ideation, even in community samples (Gross & Muñoz, 1995; Young et al., 2019; Zapf et al., 2024).

Although previous research has identified the relationship between family processes and variations in mental health problems (Kapetanovic & Skoog, 2021; Zapf et al., 2024), the relationship between self-concept with family processes and mental health problems remains less established. Specifically, the family self-concept dimension may be particularly connected not only to family processes (Garcia et al., 2024; Lamborn et al., 1991) but also to mental health deterioration (Cornella-Font et al., 2020; Fuentes et al., 2020; Garaigordobil et al., 2008). However, in the classical theoretical model of self-concept (i.e., the big four dimensions), the family component is subsumed under the social dimension (Byrne & Shavelson, 1996; Shavelson et al., 1976). This consolidation may obscure key aspects that are unique to the family dimension and not fully captured by the social dimension. In line with the idea that social self-concept might adequately represent family self-concept, previous research has posited that family interactions help to shape the child's ability to form relationships outside the home (Fraley & Roisman, 2019; Krauss et al., 2020). This could partly explain why the capability to relate to others and form friendships (i.e., social self-concept) has frequently been used as a key dimension representing family processes (Archuleta et al., 2024; Chansky & Kendall, 1997; Connolly, 1989; Jhang, 2017; Zhang et al., 2024).

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However, few efforts have been made to empirically test whether the social component of the self-concept is equally related to family processes—implying that the family might be just a part of the social self-concept—or if, conversely, the family dimension is more closely linked to family processes than the social dimension. In addition, there has been limited exploration of the relationship between mental health impairments such as psychological distress and depressive symptoms and different parts of the self-concept. Previous research has suggested that emotional regulation might be particularly affected in mental health issues (Gross & Muñoz, 1995; Young et al., 2019; Zapf et al., 2024), indicating that the emotional self-concept could be significantly impaired. However, all aspects of the self may be affected by mental health impairments, albeit to varying degrees that need to be quantified. As suggested by earlier studies, the family self-concept might also relate to mental health impairment, though its connection to mental health problems should be compared with the emotional dimension—which may be particularly affected—or the social dimension, which might not be adequately represented.

The present study

The present study aims to determine whether the family component of self-concept is inadequately represented by the social dimension. To address this question, a two-step approach was adopted. The first step involved empirically testing the structure of self-concept by incorporating family self-concept into the classical four-dimensional model, which includes academic, social, emotional, and physical dimensions. This was accomplished using confirmatory factor analysis and tests of invariance. The study examined the fit of three competing theoretical models: a unidimensional model, a multidimensional oblique model that includes academic, social, emotional, family, and physical dimensions, and a multidimensional orthogonal model. It was hypothesized that the multidimensional oblique model, which assumes correlated dimensions, would provide a better fit to the data compared to the unidimensional model and the multidimensional orthogonal model. In addition, it was expected that the multidimensional oblique model would show invariance, ensuring that the five related dimensions of the self-concept structure would remain consistent across different groups defined by sex and age.

The second step involved analyzing the relationship between each dimension of self-concept and various indicators, both family-specific and non-family-specific. To distinguish between levels of relationships, effect sizes and their confidence intervals were used. It was tested whether family self-concept would be most strongly related to parent–child communication for both mothers and fathers—captured through open communication, communication problems, and avoidant communication—as well as to family functioning, since these criteria are specific to the family. Furthermore, the study examined whether the emotional self-concept is most strongly related to mental health deterioration, captured by psychological distress and depressive symptoms, justifying this analysis because these criteria are emotional-specific. It was also hypothesized that, given the family's crucial role in psychosocial development, family self-concept would be highly related to mental health deterioration to a degree similar to that of emotional self-concept. This hypothesis would be supported by a large effect size with overlapping confidence intervals, despite the fact that mental health deterioration is not strictly a family-specific indicator.

Methods

Participants and Procedure

The participants in this study were 4,953 Mexican adolescents from 9th to 12th grade, aged between 14 and 17 years (M = 15.60, SD = 0.92). Of these, 2,551 (51.5%) were men and 2,402 were women. Although different criteria exist for defining adolescent age groups, this study focused on middle and late adolescence, as defined in previous research (Rubach et al., 2020; van der Wal et al., 2024). Two age groups were established: middle adolescence, comprising 2,395 participants aged 14 and 15 years (i.e., 9th and 10th grades), and late adolescence, comprising 2,558 participants aged 16 and 17 years (i.e., 11th and 12th grades).

An a priori power analysis was conducted to determine the sample-size necessary to detect a quarter of a small effect size (r = .10, R^2 = .01) for Pearson correlation analysis (r = .0499, R^2 = .0025), with a statistical power of .95 ($1 - \beta = .95$) and conventional values of Type I and Type II error rates (α = .05; $1 - \beta = .95$). The results indicated that a minimum sample of 5,200 participants was required (Faul et al., 2007; Garcia et al., 2024; Pérez et al., 1999).

A sensitivity power analysis for the study sample (N = 4.953) with a statistical power of .95 and the same Type I and Type II error rates (α = .05; $1 - \beta = .95$), indicated the sensitivity to detect an effect size close to the target (r = .0509, R^2 = .0026), for Pearson correlation analysis, considering 4,951 error degrees of freedom (Faul et al., 2009; Garcia et al., 2008). These calculations were performed using G*Power 3.1 software (Faul et al., 2009).

To achieve the study sample of 4,953 participants, principals from 12 high schools in a large metropolitan area of Nuevo León, Mexico—a city with over one million inhabitants—were contacted. Schools were randomly selected from a comprehensive list of 106 schools in the city. Participants (96% response rate) met the following criteria: (1) Mexican nationality, (2) aged between 14 and 17 years, (3) enrolled in grades 9 through 12, (4) obtained parental or legal guardian consent, and (5) attended the designated classroom for data collection. Ethical approval for the study was granted by the ethics committee of Autonomous University of Nuevo Leon (Mexico), code No. 2023/90. The study adhered to the principles outlined in the Declaration of Helsinki.

Measures

Self-concept was measured with the Five-Factor Self-Concept Questionnaire (AF-5; Garcia & Musitu, 1999). This questionnaire captures self-concept through 30 items distributed across five dimensions: academic, social, emotional, family, and physical self-concepts. The academic or work self-concept refers to how the subject perceives their performance as a student or worker (e.g., "My teachers think I am a good student"). The social self-concept, which consists of the perceptions the subjects have of their performance in social settings (e.g., "I am a friendly person"). Emotional self-concept, which measures the perception the individual has of their emotional state and their responses to specific circumstances (e.g., "A lot of things make me nervous," reversed item). Family self-concept, which refers to the individual's perceptions of participation, involvement, and integration in the family context (e.g., "I feel happy at home"). Physical self-concept, which captures the perception the subject has of their physical appearance and physical performance (e.g., "I like my physical appearance). Each subscale consists of 6 items, which are answered on a 99-point scale, ranging from 1 = "Complete Disagreement" to 99 = "Complete Agreement" (Garcia et al., 2011; Garcia & Musitu, 1999). A higher

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score on the subscales indicates a higher self-concept. The AF-5 has shown good psychometric properties. The factor structure has been confirmed in different studies (Chen et al., 2024; Garcia et al., 2006; Garcia & Musitu, 1999; Tomás & Oliver, 2004). The AF-5 is widely used to capture multidimensional self-concept in countries, such as Spain (Fuentes et al., 2011, 2022; Garcia et al., 2011), Portugal (Garcia et al., 2006), Brazil (Garcia et al., 2018), the United States (Garcia et al., 2013), and China (Chen et al., 2020). The AF-5 has not shown method effects related to negatively worded items (Garcia et al., 2011; Tomás & Oliver, 2004). Cronbach's alpha was .87 for academic, .81 for social, .82 for emotional, .87 for family, and .79 for physical subscales.

Parent–child communication was measured using the Parent-Adolescent Communication Scale (PACS; Barnes & Olson, 1982). The PACS questionnaire captures the dyadic quality of parent to adolescent communication through 20 items spread across three subscales: open communication, communication problems, and avoidant communication (Feldman & Rosenthal, 2000; Zapf et al., 2023). The open communication subscale evaluates free exchange of information in an understanding environment (e.g., "When I ask questions, I get honest answers from my mother/father"). The communication problems subscale evaluates the resistance to share and negative interaction styles (e.g., "My mother/father insults me when s/he is angry with me"). The avoidant communication subscale assesses selectivity and caution in the content that is shared (e.g., "I am sometimes afraid to ask my mother/father for what I want"). The items are answered in a 5-Point Likert-type scale, ranging from 1 = "Never" to 5 = "Always". For open communication, greater scores represent a good sense of parent–child communication, whereas for both communication problems and avoidant communication subscales, greater scores represent lower parent–child communication. Adolescents rated the items twice, once for mother and once for father (Feldman & Rosenthal, 2000). The PACS is amongst the most popular questionnaires to measure parent–child communication (Barnes & Olson, 1982; Zapf et al., 2023). The alpha values for mother–child communication were .93 for open communication, .79 for communication problems, and .75 for avoidant communication. The alpha values for father–child communication were .94 for open communication, .73 for communication problems, and .72 for avoidant communication.

Family functioning was assessed using the Family APGAR Questionnaire (Smilkstein, 1978). This instrument measures global family functioning through 5 items that assess adaptability, partnership, growth, affection, and resolve (e.g., "I find that my family accepts my wishes to take on new activities or make changes in my lifestyle"). The responses to the items are answered in a 3-point Likert-type scale, ranging from 0 = "Never" to 2 = "Sometimes". Higher scores represent a higher family functioning. Studies have shown that the Family APGAR Questionnaire has good psychometric properties (Campo-Arias & Caballero-Domínguez, 2021; Good et al., 1979; Smilkstein et al., 1982). In the present study, Cronbach's alpha was .81.

Psychological distress was measured though the Kessler Psychological Distress Scale (Furukawa et al., 2003; Kessler et al., 2002). The K10 questionnaire measures distress in the past 30 days through 10 items that capture the frequency of psychological distress symptoms (e.g., "Did you feel so nervous that nothing could calm you down"). The items are answered in a 5-point Likert-scale, ranging from 1 = "None of the Time" to 5 = "All of the Time". Higher scores represent more psychological distress (Furukawa et al., 2003). The K10 has been reported to have adequate psychometric properties (Vargas-Terrez et al., 2011). In the present study, Cronbach's alpha was .90.

Depressive symptoms were measured with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). This scale evaluates the frequency and severity of depressive symptoms through 20 items (e.g., "I thought my life had been a failure"). The questions are answered in a five-point Likert-type scale, ranging from 1 = "None of the Time" to 5 = "All of the Time" (Bean et al., 2024; Eaton et al., 2004). Higher scores in the scale represent more depressive symptoms. The CES-D has shown adequate psychometric properties (Herrero & Gracia, 2007; Radloff, 1991, 1977). In the present study, Cronbach's alpha was .91.

Data Analysis

Confirmatory Factor Analysis

Structural equation models (SEMs) were used to test which theoretical model is the most accurate by analyzing its goodness-of-fit to the empirical data. The software EQS 6.1 was used to examine the SEMs (Byrne, 2006). A robust maximum likelihood method was applied as self-concept does not follow a multinormal distribution (Satorra & Bentler, 2001). In addition, the analyses were run again after the 99-point scale was transformed into a discrete scale with two points, one above and one below the median value, to reduce the error variance and increase the adjustment of the models to the data (Chen et al., 2020; Garcia et al., 2006; Garcia et al., 2013).

In the first step, the fit of the one-factor model of self-concept to data was tested. This model considers self-concept as one dimension (Baumeister et al., 2003; Rosenberg, 1965). In the second step, the orthogonal five-factor model was tested, where self-concept is considered multidimensional and has five orthogonal (i.e., unrelated) dimensions (i.e., academic, social, emotional, family, and physical) (Burbach & Bridgemen, 1976; Garcia et al., 2018; Shavelson et al., 1976). In the third step, the oblique five-factor model of self-concept was tested, where self-concept has five dimensions, but they are correlated between each-other (Garcia et al., 2006, 2018; Shavelson et al., 1976). Finally, in the fourth step, the five-dimensional oblique (i.e., correlated) model is tested, but error covariances are released for the most correlated pair of items within each factor (Byrne & Shavelson, 1996).

To assess the model fit to data, robust goodness-of-fit indices were used, the Satorra-Bentler chi-squared statistic, the root-mean-squared error of approximation (RMSEA) with 90% CI, comparative fit index (CFI), and Akaike information criterion (AIC). The RMSEA with a 90% confidence interval indicates a poor fit for values above .08, acceptable fit for values between .05 and .08, and good fit for values lower than .05 (Browne & Cudeck, 1992). The CFI indicates an acceptable fit when values are above .90, and a good fit when values are above .95 (Marsh & Hau, 1996). AIC suggests a better fit of the model to the data the lower its value (Akaike, 1987).

Invariance across sex and age groups

To test the equivalence (i.e., invariance) of model parameters across sex (men vs. women) and age groups (14–15-year-olds vs. 16–17-year-olds), four nested models that progressively increased the number of restrictions by constraining free parameters was proved: (a) unconstrained, without any restrictions across parameters, (b) restricting factor pattern coefficients across the samples, (c) restricting factor variances and covariances across the samples, and (d) restricting equality of the error variances across the samples. The $|\Delta CFI|$ is a robust index of invariance for nested

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models (Cheung & Rensvold, 2002). Cheung and Rensvold (2002) suggested that |ΔCFI| values smaller than .010 (i.e., |ΔCFI| < .010) indicate invariance.

Analysis of the relationship between self-concept with indicators

Pearson's *r* correlation coefficients were used to calculate the relationship between the dimensions of self-concept (i.e., academic, social, emotional, family, and physical), family-specific indicators based on family processes (i.e., parent–child communication and family functioning), and family-non-specific indicators associated with mental health deterioration (i.e., psychological distress and depressive symptoms). To calculate the Pearson's *r* correlation and its confidence intervals, IBM SPSS Statistics version 28 was used (previously, the correlation procedure in SPSS did not provide confidence intervals in the output) (Beaulieu-Prevost, 2006; Fisher, 1925; Weaver & Koopman, 2014). Cohen's *d* effect size was calculated using the shared variance (R^2) from Pearson's *r* correlation coefficient (Ferguson, 2016; Garcia et al., 2008; Vacha-Haase & Thompson, 2004).

However, since the R^2 (shared variance effect size) does not retain the sign of the correlation, Cohen's *d* effect size and its confidence intervals were calculated from R^2 Pearson's correlation. Cohen's *d* has a known normal distribution and retains the sign of the relationship. Cohen's *d* effect size was used to represent the effect size of the relationship between each self-concept dimension and the family-specific and family-non-specific indicators. For Cohen's *d* effect sizes, values equal to or below 0.19 are considered irrelevant, values between 0.20 and 0.49 are small, values between 0.50 and 0.79 are medium, and values equal to or above 0.80 are large (Cohen, 1988).

In addition, to test for significant differences between the effect sizes of the relationships, confidence interval analysis was applied. There were no statistically significant differences when confidence intervals overlapped, while statistically significant differences were indicated when confidence intervals did not overlap (Garcia et al., 2008; Stevens, 1992; Weaver & Koopman, 2014). The advantage of this method is that the null hypothesis test only indicates whether the relationships between two variables differ from zero, whereas Cohen's *d* effect size confidence intervals assess whether the effect sizes are equivalent. With this common scale, it is possible to determine the size of the relationship and compare it with other variables, even across studies, as seen in meta-analyses (Poston & Hanson, 2010; Powers & Emmelkamp, 2008; Rock et al., 2014). In this regard, scholars have emphasized that effect sizes should be reported alongside statistical significance (Garcia et al., 2008; Stevens, 1992; Weaver & Koopman, 2014).

Results

Confirmatory Factor Analysis

The comparisons between four empirical competitive models to the data (Table 1) showed that the model that worst fit the data was the unidimensional model of self-concept, CFI = .540, RMSEA = .122 (90% CI = .121 – .123), AIC = 29471.8. The orthogonal five-factor model showed an improvement in the fit to the data, CFI = .848,

Table 1. Confirmatory factor analysis and analysis for the invariance between sex and age groups

Model	SB-χ^2	df	RMSEA (90% CI)	CFI	|ΔCFI|	AIC
Original scale						
Unidimensional	30281.8	405	.122 (.121, .123)	.540		29471.8
Five orthogonal factors	10254.6	405	.070 (.069, .071)	.848		9444.6
Theoretical: Five oblique factors	7915.2	395	.062 (.061, .063)	.884		7125.2
Theoretical + r_{error} #	5525.1	390	.052 (.050, .053)	.921		4745.1
Discrete scale						
Unidimensional	17530.1	405	.092 (.091, .094)	.585		16720.1
Five orthogonal factors	4888.0	405	.047 (.046, .048)	.891		4078.0
Theoretical: Five oblique factors	3962.1	395	.043 (.041, .044)	.913		3172.1
Theoretical + r_{error} #	994.7	390	.025 (.023, .027)	.962		214.7
Multi-sample sex						
Unrestricted	6895.7	780	.040 (.039, .041)	.891		5335.7
Equal loadings	7092.8	805	.040 (.039, .041)	.888	< .01	5482.8
Equal variances and covariances	7162.3	820	.040 (.039, .040)	.887	< .01	5522.3
Equal variances of errors	7347.2	850	.039 (.038, .040)	.886	< .01	5647.2
Multi-sample age						
Unrestricted	6872.9	780	.040 (.039, .041)	.894		5312.9
Equal loadings	6926.1	805	.039 (.038, .040)	.893	< .01	5316.1
Equal variances and covariances	6954.9	820	.039 (.038, .040)	.893	< .01	5314.9
Equal variances of errors	6986.1	850	.038 (.037, .039)	.894	< .01	5286.1

Note: Satorra-Bentler Chi-square (SB-χ^2), degrees of freedom (df), Root Mean Square Error of Approximation (RMSEA), Comparative Fix Index (CFI), value of the change in CFI |ΔCFI|, Akaike Information Criterion (AIC). Tr model is the same as T but with the restriction of independence for error freed in the pairs: 17-2, 13-3, 14-4, 16-6, 25-10.

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RMSEA = .070 (90% CI = .069 – .071), AIC = 9444.6, and there was no overlap with the RMSEA confidence intervals with the previous model. By releasing the orthogonality constraint, the oblique five-factor model improved the fit to the data, CFI = .884, RMSEA = .062 (90% CI = .061 – .063), AIC = 7125.2, and there was also no overlap with the RMSEA confidence intervals with the previous model. Similarly, when testing the fit of the data to the oblique five-factor model while freeing the error covariance for the more correlated pairs of items, the best-fit indices were achieved, CFI = .921, RMSEA = .052 (90% CI = .050 – .053), AIC = 4745.1, and there was also no overlap with the RMSEA confidence intervals with the previous model.

In addition, all the fit indices consistently improved when the models were examined based on the discrete scale. The unidimensional model had the worst fit to the data, CFI = .585, RMSEA = .092 (90% CI = .091 – .094), AIC = 16720.1. The orthogonal five-factor model showed an improvement of fit to the data, CFI = .891, RMSEA = .047 (90% CI = .046 – .048), AIC = 4078.0. The oblique five-factor model also had an improvement of fit to the data, CFI = .913, RMSEA = .043 (90% CI = .041 – .044), AIC = 3172.1. The best fit of the data was achieved with the oblique five-factor model while freeing the error covariance for the more correlated pairs of items, CFI = .962, RMSEA = .025 (90% CI = .023 – .027), AIC = 214.7. Also, the RMSEA confidence intervals did not overlap with each step, indicating an improvement in model fit to the data.

Invariance across Sex and Age Groups

The fit indices for the four increasingly restrictive models of invariance between sexes (males vs. females) and ages (14–15 vs. 16–17) obtained satisfactory results (Table 1). The equal loadings model, which constrains the pattern loadings across sex (ΔCFI < .01) and age (ΔCFI < .01) suggested that factor loadings were invariant across all subsamples. In addition, since the RMSEA confidence intervals overlapped, the fit of the more restrictive model was equivalent. It can be observed that all items loaded in the assigned factor with loadings always larger than .42 (Tables 2 and 3). These results have been maintained even though a single loading value has been forced to be maintained for all subsamples. For example, item 3, which corresponded to the emotional factor, had an estimated loading of .55 in both sexes (Table 2), and .57 for both age groups (Table 3).

The equal variances and covariances model, which constrains the pattern of variances and covariances across sex (ΔCFI < .01) and age (ΔCFI < .01) suggested that factor patterns of variances and covariances were invariant across all subsamples. In addition, since the RMSEA confidence intervals overlapped, the fit of the more restrictive model was equivalent. All the factors had the same patterns of variances and structural covariances and, despite maintaining the same values, the model did not lose fit. It can be observed that the emotional variance was 19.08 between sexes (Table 2) and 20.16 between age groups (Table 3). The covariance of the family factor with the social factor was 19.78 in both sexes (Table 2) and 19.84 in both age groups (Table 3). The correlation of family with the social factor was .37 in both sexes (Table 2) and .37 in both age groups (Table 3).

The model of equal estimation errors for each item, which imposes equal estimation error between sex (ΔCFI < .010) and age (ΔCFI < .010) suggested that estimation errors were invariant for all subsamples. In addition, since the RMSEA confidence intervals overlapped, the fit of the more restrictive model was equivalent. All factors had the same estimation errors, and despite maintaining the same values, the model did not lose fit. It can be observed that item 10, which belongs to the physical factor, had an estimated error of .86 for both sexes (Table 2) and .85 (Table 3) for both age groups.

Table 2. Confirmatory factor analysis loadings, variances, covariances, and errors in the most constrained model across sex

	AC	SO	EM	FA	PH	Error
Item	Factor loading					Males/Females
1	.69					.73
6	.81					59
11	.66					.75
16	.57					.82
21	.83					.56
26	.83					.56
2		.88				.48
7		.60				.80
12		.69				.73
17		.63				.78
22		.42				.91
27		.73				.68
3			.55			.84
8			.78			.63
13			.51			.85
18			.61			.79
23			.58			.81
28			.81			.59
4				.58		.81
9				.81		.68
14				.58		.78
19				.74		.65
24				.80		.61
29				.84		.55
5					.57	.82
10					.51	.86
15					.54	.84
20					.68	.74
25					.54	.85
30					.74	.68
Factor variances, [covariances], and (correlations)						
AC	26.47	(.36)	(.13)	(.45)	(.51)	
SO	[20.02]	36.01	(.33)	(.37)	(.64)	
EM	[7.55]	[17.29]	19.08	(.19)	(.32)	
FA	[21.67]	[19.78]	[10.59]	21.32	(.47)	
PH	[22.20]	[26.23]	[15.26]	[20.23]	19.67	

Note: AC = Academic; SO = Social; EM = Emotional; FA = Family; PH = Physical. All estimated parameters were statistically significant ($p < .05$), except the covariance between EM and AC. Negatively worded items (3, 4, 8, 12, 13, 14, 18, 22, 23, and 28) were inverted.

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Table 3. Confirmatory factor analysis loadings, variances, covariances, and errors in the most constrained model across age

	AC	SO	EM	FA	PH	Error
Item	Factor loading					14–15/16–17
1	.69					.72
6	.81					.58
11	.66					.75
16	.57					.82
21	.83					.56
26	.83					.57
2		.88				.48
7		.66				.80
12		.69				.72
17		.62				.78
22		.43				.90
27		.74				.68
3			.57			.82
8			.79			.62
13			.54			.84
18			.62			.78
23			.60			.80
28			.81			.59
4				.59		.81
9				.74		.68
14				.63		.78
19				.76		.66
24				.80		.61
29				.84		.55
5					.57	.82
10					.52	.85
15					.55	.84
20					.69	.73
25					.55	.84
30					.72	.69
Factor variances, [covariances], and (correlations)						
AC	26.54	(.34)	(.10)	(.44)	(.49)	
SO	[19.36]	36.12	(.34)	(.37)	(.45)	
EM	[6.04]	[18.17]	20.16	(.20)	(.35)	
FA	[21.45]	[19.84]	[11.10]	21.42	(.48)	
PH	[21.70]	[26.58]	[16.50]	[20.46]	20.01	

Note: AC = Academic; SO = Social; EM = Emotional; FA = Family; PH = Physical. All estimated parameters were statistically significant ($p < .05$), except the covariance between EM and AC. Negatively worded items (3, 4, 8, 12, 13, 14, 18, 22, 23, and 28) were inverted.

Relationships between self-concept with indicators

The study examined the relationships between different dimensions of self-concept (academic, social, emotional, family, and physical) and family-specific indicators (parent–child communication and family functioning), finding both positive and negative relationships, as shown by Cohen's d effect sizes. Positive relationships showed effect sizes distributed to the right, while negative relationships were distributed to the left (see Tables 4 and 5, Figures 1–3).

The relationship between self-concept dimensions and open communication was positive, with significant results ($\alpha = .05$), as no confidence interval included 0. Confidence interval overlaps ($1 - \alpha = .95$) revealed three statistically different levels of relationship. At the highest level, family self-concept was most strongly associated with open communication, with mother–child communication ($d = 1.83$, 95% CI [1.81, 1.92]) showing a significantly stronger relationship than father–child communication ($d = 1.33$, 95% CI [1.31, 1.42]), as their confidence intervals did not overlap. The relationship had a large effect size ($d > .8$). At the next level, academic, social, and physical self-concepts showed medium effect sizes ($d > .5$) with overlapping confidence intervals. Emotional self-concept, at the third level, showed a small effect size ($d > .2$). In these levels, there were no differences between mother–child and father–child communication, as confidence intervals overlapped.

For parent–child communication problems, negative relationships with self-concept dimensions were significant ($\alpha = .05$), as no confidence interval included 0. There were two distinct levels, with family self-concept showing the strongest relationship, and mother–child problems ($d = -1.19$, 95% CI [−1.31, −1.12]) being more strongly related than father–child problems ($d = -0.93$, 95% CI [−1.01, −0.92]). This relationship also had a large effect size ($d > |.8|$). At the next level, academic, social, emotional, and physical self-concepts had small effect sizes ($d > |.2|$) with overlapping intervals, with no differences between mother–child and father–child communication problems.

Negative relationships also emerged between self-concept dimensions and avoidant communication. In the first level, family and emotional self-concepts were moderately related to mother–child avoidant communication ($d = -0.54$, 95% CI [−0.61, −0.52] and $d = -0.52$, 95% CI [−0.61, −0.52], respectively). Father–child avoidant communication was weakly associated with emotional self-concept ($d = -0.46$, 95% CI [−0.51, −0.42]). At the third level, mother–child avoidant communication was related to social ($d = -0.30$, 95% CI [−0.41, −0.22]) and physical self-concepts ($d = -0.23$, 95% CI [−0.31, −0.22]), and father–child avoidant communication with family self-concept ($d = -0.38$, 95% CI [−0.41, −0.32]) and social self-concept ($d = -0.20$, 95% CI [−0.31, −0.12]), all showing small effect sizes. Some relationships, like between avoidant communication and academic or physical self-concept, were insignificant ($d < |.2|$), with one confidence intervals including 0.

Family functioning had significant positive relationships with self-concept dimensions, with confidence interval overlaps revealing three levels. At the top level, family self-concept had the strongest association ($d = 1.84$, 90% CI [1.81, 1.92]). Academic, physical, and social self-concepts at the second level had medium to small effect sizes, while emotional self-concept at the third level showed a small effect size.

Negative relationships were also found between self-concept dimensions and mental health indicators, specifically psychological distress and depressive symptoms. For psychological distress, emotional and family self-concepts had strong associations with large effect sizes ($d > .8$). Social and physical self-concepts at the second level had medium effect sizes ($d > |.5|$), while academic self-concept, at the third level, showed a small effect size. For depressive symptoms, family and emotional self-concepts showed large associations, with physical and social self-concepts showing moderate

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Table 4. Correlations (*r*) between self-concept and parent–child communication, family functioning, psychological distress, and depressive symptoms

	AC	SO	EM	FA	PH
Mother–child communication					
Open communication	.33 (.30, .35)	.28 (.25, .31)	.11 (.08, .14)	.67 (.66, .69)	.30 (.28, .33)
Communication problems	−.14 (−.17, −.12)	−.14 (−.17, −.11)	−.19 (−.21, −.16)	−.51 (−.53, −.49)	−.12 (−.15, −.09)
Avoidant communication	−.08 (−.11, −.05)	−.15 (−.18, −.12)	−.25 (−.28, −.22)	−.26 (−.29, −.23)	−.12 (−.14, −.09)
Father–child communication					
Open communication	.29 (.26, .32)	.28 (.26, .31)	.16 (.13, .19)	.55 (.53, .57)	.31 (.28, .33)
Communication problems	−.12 (−.15, −.10)	−.12 (−.14, −.09)	−.18 (−.20, −.15)	−.42 (−.44, −.40)	−.11 (−.13, −.08)
Avoidant communication	−.03 (−.05, .00)	−.10 (−.13, −.07)	−.22 (−.25, −.20)	−.19 (−.21, −.16)	−.09 (−.12, −.06)
Family functioning	.28 (.25, .31)	.23 (.20, .26)	.14 (.11, .16)	.68 (.66, .69)	.27 (.24, .29)
Psychological distress	−.23 (−.25, −.20)	−.33 (−.35, −.30)	−.51 (−.53, −.49)	−.48 (−.50, −.46)	−.33 (−.36, −.31)
Depressive symptoms	−.27 (−.29, −.24)	−.36 (−.39, −.34)	−.46 (−.48, −.44)	−.53 (−.55, −.51)	−.37 (−.39, −.35)

Note: AC = Academic; SO = Social; EM = Emotional; FA = Family; PH = Physical. All Pearson correlations were statistically significant ($p < .05$), except avoidant communication in Father Family Communication and academic self-concept.

Table 5. Cohen's (*d*) effect size values between self-concept, and parent–child communication, family functioning, psychological distress, and depressive symptoms

	AC	SO	EM	FA	PH
Mother–child communication					
Open communication	$.70^{2}$ (.61, .82)	$.58^{2}$ (.51, .62)	$.22^{1}$ (.21, .32)	1.83^{3} (1.81, 1.92)	$.63^{2}$ (.61, .72)
Communication problems	$-.29^{1}$ (−.31, −.22)	$-.28^{1}$ (−.31, −.22)	$-.38^{1}$ (−.41, −.32)	-1.19^{3} (−1.31, −1.12)	$-.24^{1}$ (−.31, −.22)
Avoidant Communication	$-.17^{0}$ (−.21, −.12)	$-.30^{1}$ (−.41, −.22)	$-.52^{2}$ (−.61, −.52)	$-.54^{2}$ (−.61, −.52)	$-.23^{1}$ (−.31, −.22)
Father–child communication					
Open communication	$.61^{2}$ (.51, .72)	$.59^{2}$ (.51, .72)	$.33^{1}$ (.31, .42)	1.33^{3} (1.31, 1.42)	$.65^{2}$ (.61, .72)
Communication problems	$-.25^{1}$ (−.31, −.22)	$-.23^{1}$ (−.31, −.22)	$-.36^{1}$ (−.41, −.32)	$-.93^{3}$ (−1.01, −.92)	$-.21^{1}$ (−.31, −.22)
Avoidant communication	$-.05^{0}$ (−.11, .02)	$-.20^{1}$ (−.31, −.12)	$-.46^{1}$ (−.51, −.42)	$-.38^{1}$ (−.41, −.32)	$-.18^{0}$ (−.21, −.12)
Family Functioning	$.58^{2}$ (.51, .62)	$.47^{1}$ (.41, .52)	$.27^{1}$ (.21, .32)	1.84^{3} (1.81, 1.92)	$.55^{2}$ (.51, .62)
Psychological distress	$-.47^{1}$ (−.51, −.42)	$-.70^{2}$ (−.81, −.62)	-1.20^{3} (−1.31, −1.12)	-1.10^{3} (−1.21, −1.02)	$-.71^{2}$ (−.81, −.62)
Depressive symptoms	$-.55^{2}$ (−.61, −.52)	$-.78^{2}$ (−.81, −.72)	-1.05^{3} (−1.11, −1.02)	-1.24^{3} (−1.31, −1.22)	$-.80^{3}$ (−.91, −.72)

Note: AC = Academic; SO = Social; EM = Emotional; FA = Family; PH = Physical. Effect size of *d*: ^{0}irrelevant (≤0.19), ^{1}small (0.20 – 0.49), ^{2}medium (0.50 – 0.79), and ^{3}large (≥0.80).

to small associations. At the fourth level, academic self-concept showed a medium effect size.

Family self-concept consistently showed higher relationships with indicators than social self-concept, with confidence intervals indicating no overlap. Family self-concept had the strongest associations with family functioning and mother–child open communication. It was also more strongly associated with other indicators than social self-concept, including father–child open communication, mother–child communication problems, psychological distress, depressive symptoms, and father–child communication problems.

Discussion

For decades, psychological science has been examining what makes a person unique—the self—through multidimensional models. However, these theoretical models require empirical testing in psychological science. The present study tests a model based on the Big Five dimensions of self-concept, which includes the often-overlooked dimension: family self-concept. Family self-concept can be viewed as a part of the self, distinct from one's self-perceptions of good social skills (i.e., social self-concept). Nevertheless, classical models have regarded family self-concept as a sub-area of social self-concept (Byrne & Shavelson, 1996; Shavelson et al., 1976). Furthermore, classical dimensions (academic, social, emotional, and physical), when compared with the neglected dimension of family self-concept, may not exhibit the same relationships, not only with family processes but also with the deterioration of mental health. This study has examined whether the family aspect should be distinguished from the broader social dimension.

First of all, the study tested which theoretical structure of self-concept best fit the data. This question is crucial for ensuring that theoretical models are grounded in empirical evidence. The CFA analyses showed that the big five model of self-concept, based on different but related dimensions (i.e., an oblique model), provided a better fit to the data than the competing five-dimensional orthogonal and unidimensional models. The indicators showed that the items for each dimension loaded on their theoretically corresponding factor, suggesting that the Big Five factor model has empirical support. In addition, the Big Five structure of self-

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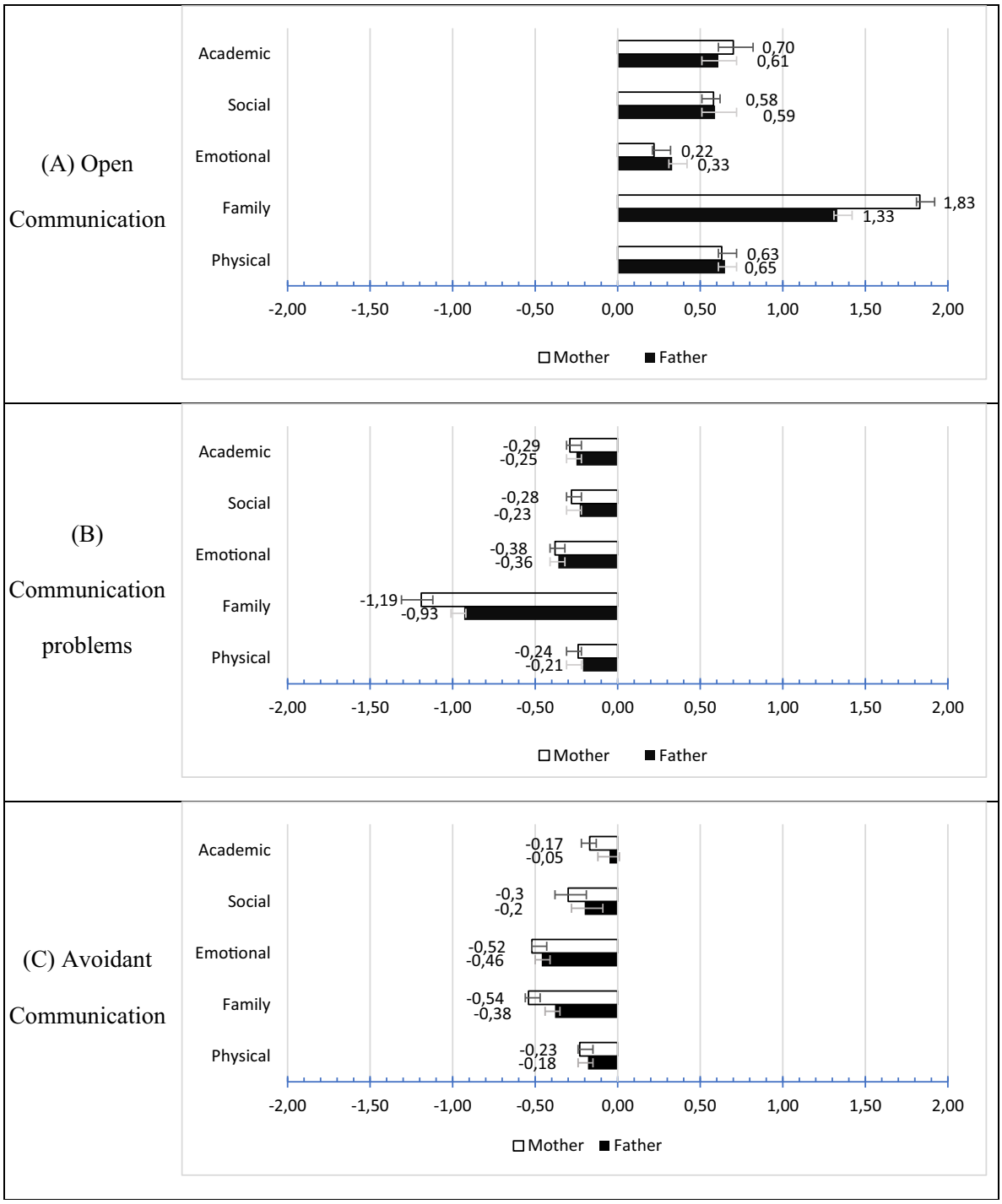

Figure 1. Cohen's (*d*) effect size and 95% CI values between mother–child and father–child open communication, communication problems, and avoidant communication with five self-concept dimensions.

concept was invariant across sex and age. The invariance analyses revealed that both females and males, as well as early and late adolescents, did not differ in their response patterns. These findings represent a significant advance in psychology, as they facilitate the identification of the multidimensional structure of self-concept based on the big five factors. Particularly in the study of self-concept during adolescence, it is important for models to be invariant with respect to sex and age. These findings extend previous studies providing support for a five-factor structure of self-concept that is invariant across sex, age, and cultural contexts (Chen et al., 2020; Garcia et al., 2006, 2018; Murgui et al., 2012). Compliance with the invariance requirement ensures comparability between groups (e.g., males and females). This invariance testing is a prerequisite often overlooked in research. Establishing invariant models is essential for enhancing the scientific understanding of self-concept across different contexts and demographic characteristics (Chen et al., 2020; Marsh et al., 1988; Putnick & Bornstein, 2016).

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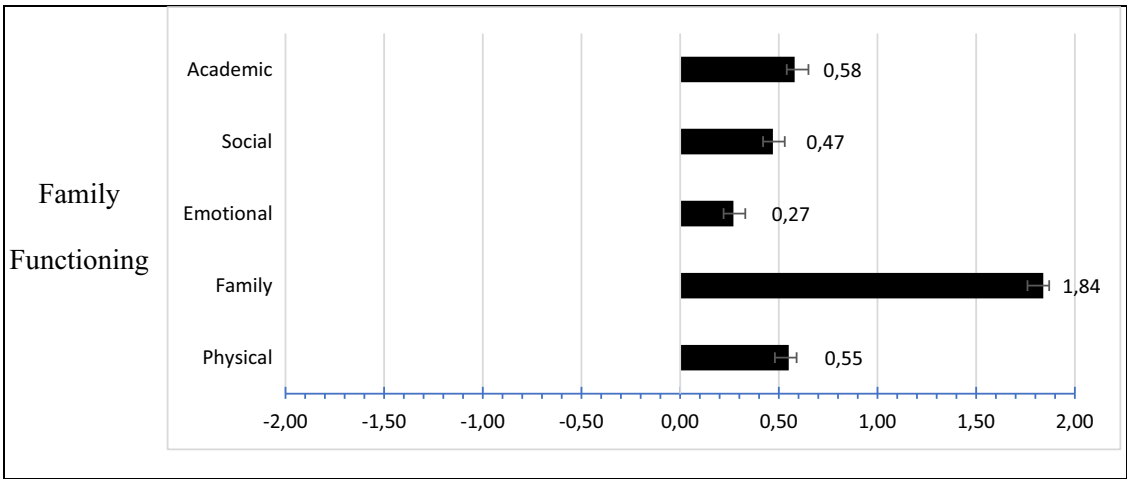

Figure 2. Cohen's (*d*) effect size and 95% CI values between family functioning, with five self-concept dimensions.

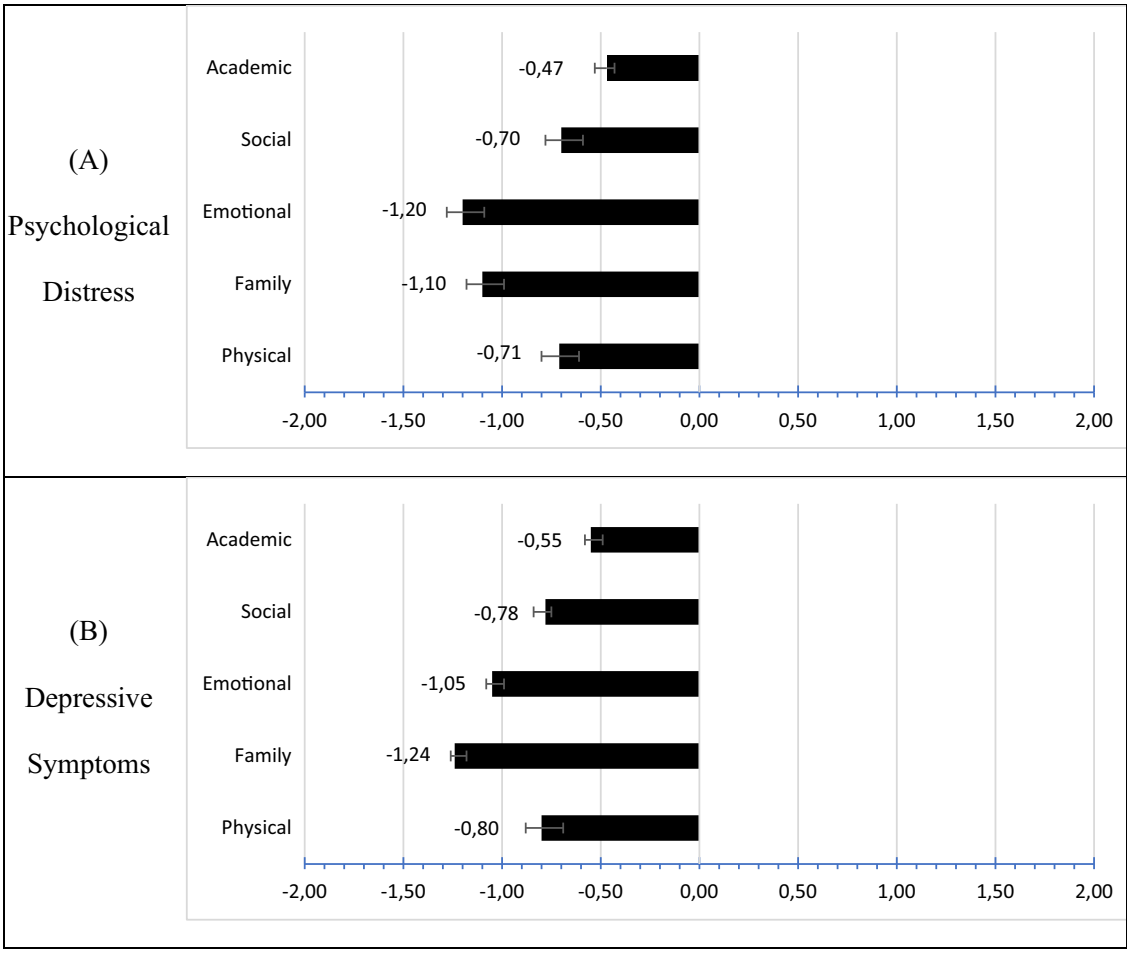

Figure 3. Cohen's (*d*) effect size and 95% CI values between psychological distress, and depressive symptoms with five self-concept dimensions.

This study analyzed the relationships between self-concept and parent–child communication (in terms of open communication, communication problems, and avoidant communication) as well as family functioning, both family-specific. Family self-concept had the strongest relation to all family process indicators. In no case was the social self-concept related to family indicators to an equal or greater extent than family self-concept. Instead, social self-concept was similarly related to family processes as the other self-concept dimensions (academic, physical, and emotional) in almost all cases; except for parent–child avoidant communication, where social self-concept had an even weaker association than emotional self-concept. Parent–child communication (i.e., open communication,

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communication problems, avoidant communication) had a high relationship with family self-concept, particularly for mothers. Mothers show a stronger link between communication patterns and family self-concept compared to fathers, probably because adolescents disclose more to mothers than to fathers (Keijsers et al., 2010; Smetana et al., 2006; Waizenhofer et al., 2004).

According to the theoretical assumption of the specificity principle in the four-factor model, since social self-concept represents family self-concept, the social dimension would have at least equivalent relation with family process indicators as the family dimension (Byrne & Shavelson, 1996; Shavelson et al., 1976). Previous research has assumed that family processes were especially related to good interpersonal relationships with peers and significant others (i.e., social self-concept) (Archuleta et al., 2024; Fraley & Roisman, 2019). However, evidence from the present research questioned this assumption. According to the present findings, social self-concept does not seem to represent family self-concept. Although, in general, the family indicators were linked to all dimensions of self-concept (i.e., oblique model), the strongest relationship was found with the family dimension (i.e., family self-concept). Family processes are not solely about helping a child develop good social skills (Alcaide et al., 2023; Lamborn et al., 1991). Family processes are related to social self-concept to a similar degree as the other self-concept dimensions, but always to a lesser degree than to family self-concept. It seems that family processes have a uniquely relevant relationship in helping the child to feel like a loved and valued member of the family (i.e., family self-concept). Thus, the findings from this study question the assumption that social self-concept represents family processes. The family dimension of self-concept appears to be more accurate (i.e., specific) for studying family processes than the social dimension.

Although family self-concept was always the dimension of self-concept that showed the greatest relationship with family processes, not all family processes were related to family self-concept to the same degree. The findings revealed that parent–child communication based on open communication and family functioning were highly related to a great family self-concept and in the same degree of relationship. As previous research indicated, open communication can help children feel valued and loved as members of their family. Parents can support their children by reasoning and explaining rules to provide clear guidance, and importantly, by being available for discussions about concerns and worries, serving as guides and references (Fraley & Roisman, 2019; Kerr et al., 1999). However, family processes extend beyond parent–child relationships. The study findings confirm the importance not only of the parent–child relationship (Martinez et al., 2021; Smetana et al., 2006) but also the general relationships among all family members (family functioning) (Kapetanovic & Skoog, 2021; Olson et al., 1979).

However, some aspects of family processes are negatively associated with family self-concept. Specifically, communication problems and avoidant communication were both negatively related to family self-concept, although the strength of these relationships was weaker than that observed in other family processes analyzed (i.e., open communication and family functioning). In addition, avoidant communication was negatively related to both the family and emotional components of the self to the same degree. Avoidant communication may reflect the unavailability of parental figures as referents (Fraley & Roisman, 2019). These findings are crucial, as they suggest a risk factor associated with the emotional dimension of self-concept, particularly in relation to a specific form of communication: avoidant communication. In stressful and problematic situations, children are likely to avoid communicating, which may not reduce their emotional arousal and could affect their confidence and emotional skills (Kapetanovic & Skoog, 2021; Segrin & Flora, 2018).

This study not only examined family processes and their relationship with self-concept in different ways (positively or negatively) and to varying extents but it also extends previous research on the relationships between mental health deterioration and the five dimensions of self-concept by showing a strong relationship with emotional self-concept (Gross & Muñoz, 1995; Young et al., 2019; Zapf et al., 2024). However, family self-concept had a relationship with mental health deterioration that is at least equal to, or even greater than, that of emotional self-concept. Although psychological distress and depressive symptoms are non-specific family indicators, family self-concept was closely related to them according to the findings from the present study. Psychological distress showed the highest relationship with both family and emotional self-concept. However, regarding depressive symptoms, the highest relationship was found with family self-concept, followed by emotional self-concept in second place. In addition, social self-concept consistently had a weaker relationship compared to family self-concept across both indicators of mental health deterioration: psychological distress and depressive symptoms.

Previous research has identified that psychological distress and depressive symptoms both represent forms of serious emotional disturbance (Lamborn et al., 1991; Van Dijk et al., 2014). The findings showed that psychological distress was highly related to emotional self-concept, which is to be expected due to the principle of specificity of self-concept, as psychological distress represents a form of overactivity related to the management of emotions (Crowell et al., 2015). However, the strength of the relationship between psychological distress and emotional self-concept was no greater than in family self-concept: emotional and family self-concept had the highest relation to psychological distress, followed by physical and social self-concept in the second place, and academic self-concept in the third place. Therefore, the findings from the present study indicated that family self-concept was not only related to family-specific indicators (i.e., parent–child communication and family functioning) but also was highly and negatively related to psychological distress, one of the two indicators of mental health deterioration.

Regarding depressive symptoms, the other indicator of mental health, family self-concept had the highest relationship, followed by emotional self-concept in second place, physical and social self-concept in third place, and academic self-concept in fourth. Previous research has shown that depressive symptoms represent a sense of sadness and loss of pleasure in previously enjoyed activities (Garaigordobil et al., 2008; Orth et al., 2014; Young et al., 2019). These findings are crucial, as depressive symptoms were negatively related to emotional, family, and physical self-concept, although to different extents. Among the self-concept dimensions, family self-concept showed the highest relationship with depressive symptoms, even though depressive symptoms are a non-family-specific indicator. According to previous literature, depressive symptoms are associated with an overall deterioration of self, particularly in emotional regulation (Gross & Muñoz, 1995; Rubach et al., 2020; Young et al., 2019; Zapf et al., 2024). However, not feeling loved and valued in home—family self-concept, a dimension of the self that is often overlooked—was, according to the present results, even more closely related than the emotional dimension. Social self-concept was also negatively related to depressive symptoms but to a much lesser degree than family self-concept. These findings suggest the

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need to distinguish between family self-concept and social self-concept in the study of mental health.

However, this study is not without limitations. The investigation relied on data obtained through a cross-sectional design. It is recommended that future research continue to explore the multidimensional facets of self-concept by employing longitudinal designs and even experimental methodologies. Moreover, the collective administration of surveys carries the risk of eliciting a considerable proportion of random responses. To mitigate this issue, future studies should incorporate measures designed to detect infrequent responses and identify social desirability biases. Furthermore, the use of self-report measures introduces inherent limitations, as respondents may encounter challenges in accurately articulating their own behaviors, cognitions, and affective states.

In sum, this study reveals that self-concept presents congruent relationships not only with family processes but also with mental health indicators, although to different extents. Based on the original theoretical model of self-concept, it had been assumed that social self-concept is representative of family self-concept. The present study employs sensitive tests (i.e., effect size and their confidence intervals) to address the limitations of most previous research that did not allow for comparisons between the sizes of variable relationships. The findings suggest that family self-concept is distinct from social self-concept due to its high relationship with family processes. In addition, for mental health deterioration, family self-concept is found to be equally or even more related than the ability to regulate one's own emotions (i.e., emotional self-concept). Mental health deterioration seems to be closely linked to not feeling loved and valued by one's own family.

Data availability statement. The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author contribution. M.E.: Conceptualization, data curation, formal analysis, methodology, software, validation, visualization, writing – original draft, writing – review & editing. J.C.S.S.: Conceptualization, data curation, investigation, methodology, project administration, resources, validation, and visualization. O.F.G.: Conceptualization, methodology, supervision, validation, visualization, writing – original draft, writing – review & editing. M.E.V.G.: Conceptualization, data curation, investigation, methodology, project administration, resources, validation, and visualization. F.G.: Conceptualization, data curation, formal analysis, funding acquisition, methodology, project administration, software, supervision, validation, visualization, writing – original draft, writing – review & editing.

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Competing interest. None.

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