FAMILY FUNCTIONING CHARACTERISTICS INVOLVED IN ADOLESCENT DEPRESSIVE SYMPTOMS

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Abstract

Research has shown that family functioning contributes to depressive symptoms in adolescents, with a wide range of family functioning characteristics associated to adolescent depressive symptoms. However, these family attributes have been studied through different studies, methodologies and theoretical frameworks, and do not allow envisaging a single whole picture of the family attributes associated to adolescent depressive symptoms. The objective of this study was to overcome this deficit. We followed a systematic approach and used the Family Assessment Device (FAD), which comprehensively identify six family variables in which healthy and unhealthy families differ: Problem Solving (PS), Communication (CM), Roles (RL), Affective Responsiveness (AR), Affective Involvement (AI) and Behaviour Control (BC). Independent regression analyses conducted for each variable showed that all the FAD variables significantly predicted BDI scores. However, when the six variables were introduced simultaneously in the same equation to control for the shared explained variance, only AR and AI showed significant effects, with BC approaching significance. These results were confirmed through Pratt's measure, which showed that the non-overlapping effects of AR, AI and BC accounted for virtually the whole variance explained by the FAD dimensions. Conclusions at both methodological and applied levels emerge from these results. At a methodological level, these results prove the need for controlling the shared variance between family variables before deriving any conclusion about their role. At an applied level, they showed that the family affective aspects are the most important regarding adolescent depression, with only behaviour control playing a role within the non-affective variables.

Keywords: family functioning, adolescent depression.

1. Introduction and Objectives

Family functioning has demonstrated to be a strong risk factor for developing depressive symptoms during adolescence, which has been primarily defined by broadband variables like family cohesion, warmth, acceptance or support, which represent family as a whole (Guassi Moreira and Telzer, 2015). However, it is necessary to carry out a more fine-grained analysis of the specific family functioning variables that affect adolescent depressive symptoms and this is the main purpose of this study. With this purpose, the variables of the MacMaster Model of Family Functioning (MMFF; Miller, Ryan, Keitner, Bishop, and Epstein, 2000) were used in this study, which have been found useful in distinguishing healthy and unhealthy families in clinical and research settings. Research has shown that adolescents' global scores of the MMFF are related to their depressive symptoms (Millikan, Wamboldt, and Bihun, 2002). More recently, Rodriguez-Naranjo and Caño (2018) carried out a study to test the relationship between the variables included in the MMFF and depressive symptoms in adolescents, finding that both global scores of the MMFF and also each MMFF variable on its own predicted depressive symptoms. However, in that study it remains the possibility that the different MMFF variables predicted depressive symptoms due to its shared variance and the prediction was not a genuine effect of each single variable. To our knowledge no study has aimed to differentiate between the ability of the MMFF variables to predict depressive symptoms, once the shared variance between them have been controlled, and this is the main objective of this study.

2. Method

Our sample consisted of 643 secondary-students between 12 and 17 years old. To assess the specific variables of family functioning, and its overall functioning, we used the Family Assessment Device (FAD; Epstein, Baldwin & Bishop, 1983), including its six subscales: Problem Solving (PS), Communication (CM), Roles (RL), Affective Responsiveness (AR), Affective Involvement (AI) and Behaviour Control (BC). The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was used to assess depressive symptoms in adolescents. We also measure socio-economic status (SES) through a six-item scale assessing the education and occupation of the parents, and housing conditions. All these scales showed good internal consistencies in our sample, with ranges of .65 to .89.

3. Design and Results

We conducted seven hierarchical regression equations to predict depressive symptoms. In all of them sex, age and SES were introduced in the first step for control purposes. In six of them one single MMFF variable was included in the second step, while in the seventh regression analyses all the MMFF variables were introduced jointly in the second step. When there were introduced in separate analyses, all the FAD variables significantly predicted depressive symptoms (all $ps < .001$). However, the results were at contrast when the six FAD variables together in the same equation, in order to control for the shared explained variance between FAD variables. Once controlled for the common variance, only AR and AI showed significant effects ($\beta = .21$, $p < .001$ for AR; $\beta = .16$, $p < .01$), with BC approaching significance ($\beta = .09$, $p = .07$).

Additionally to this significance tests, Pratt's measures were calculated to identify the amount of unique variance accounted for each variable (Pratt, 1987). This is a measure aimed to study unique effects of predictors in a multiple regression analyses, and one of its important attributes is that their aggregation across the different predictors equals the overall explained variance (R^2), thus it distributes R^2 between the different predictors avoiding any overlap between them. As a rule of thumb, predictors with Pratt's measures higher to the inverse of the number of predictors included in the regression equation are considered important (Wu, Zumbo & Marshall, 2014). Results are presented in Table 1, showing that the non-overlapping variance accounted for AR, AI, and BC were above the criterion recommended to consider important a predictor (.11 for nine predictors). Actually, these three FAD dimensions accounted up to 95% of the total variance explained by the demographics and FAD dimensions.

Table 2. Unique effects of demographics and FAD dimensions for the prediction of BDI.

	β	Cross product β*r	Pratt's measure d = (β* r) / R2
Gender	.38	.001	.004
Age	-.034	-.001	-.005
SES	-.096*	.011	.069
PS	-.025	-.006	-.039
CM	-.049	-.012	-.076
RL	.052	.016	.098
AR	.213***	.072	.453
AI	.159**	.051	.322
BC	.093+	.028	.174
		∑ β*r = R² =.016	∑ d = 1

*$p \le .05$; ** $p \le .01$; *** $p \le .001$; + $p \le .10$.

4. Conclusions

Conclusions at both methodological and applied levels emerge from these results. At a methodological level, these results prove the need for controlling the shared variance between predictors in regression analyses before reaching any conclusion about them. In our study the results were totally at odds depending on weather we regressed BDI scores on each FAD variable in different equations -thus without controlling its communality with other FAD variables- or we regressed BDS scores on the six variables at the same time –then controlling the shared explained variance between them. In the first case, all the FAD dimensions significantly predicted BDI scores, what did not allow revealing any discrimination between the different family functioning dimensions in order to predict BDI scores.

However, more interesting results emerged once the shared variance between family functioning variables. Thus only two out of six (affective response, affective involvement) significantly predicted BDI scores, with behaviour control being very close to the signification. But the important point is that, in contrast to this variables, three family functioning variables (problem solving, communication and roles) were irrelevant in order to predict BDI scores in adolescents. Thus, an analytical approach that adequately attributes and distinguish unique versus shared effects between predictors is required to allow a fine-grained analysis of the specific family functioning variables that affect adolescent depressive symptoms.

At an applied level, our results show that the family affective aspects are the most important regarding adolescent depression, with only behaviour control playing a role within the non-affective variables. The importance of affective aspects within the family in order to prevent depressive symptoms are in line with other results that shown the importance of emotional bonding between family members to foster adolescents' emotional regulation and prevent depressive symptoms in adolescents (Yap, Allen, & Sheeber, 2007). Of particular importance is the finding that adolescent perceptions of behavioural control also contributed to their depressive symptoms, which is consistent with other findings for parental monitoring (e.g., Kim & Ge, 2000). Yap et al. (2007) argue that affective and behavioural impulses raise in adolescence simultaneously to a decrease of external monitoring, thus explaining heightened vulnerability to emotional problems at these ages. Our findings support this and suggest that both family affection and behavioural control are instrumental in promoting adolescents' emotional regulation in response to developmental challenges.

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Family functioning characteristics involved in adolescent depressive symptoms

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Overview and Objective

Research has shown that family functioning contributes to depressive symptoms in adolescents, with a wide range of family functioning characteristics associated to adolescent depressive symptoms. However, these family attributes have been studied through different studies, methodologies and theoretical frameworks, and do not allow envisaging a single whole picture of the family attributes associated to adolescent depressive symptoms.

The objective of this study was to overcome this deficit by using a systematic approach with two main features: 1) a single instrument that comprehensively measures family functioning variables; 2) a methodological approach that control for the overlap between variables, thus preventing false negatives.

Method

Participants

643 Spanish adolescents aged from 12 to 17 years (M = 14.7; SD = 1.7).
327 were girls and 309 boys.

Measures

- Family functioning: *Family Assessment Device* (*FAD*; Epstein, Baldwin & Bishop, 1983).
    - Higher scores mean worse family functioning.
- Depressive symptoms: *Beck Depression Inventory* (*BDI*; Beck et al., 1961).
- SES: *Socio-economic Status Index*, measuring parental education, occupation and housing conditions.

Statistical Analyses

Using regression analysis, two alternative analytical strategies were employed: one-by-one strategy and unique effects strategy. In all regression analyses, sex, age and SES were entered for control purposes.

Strategy 1: One-by-one regression equation

Six hierarchical regression analyses were conducted in which BDI scores were regressed separately on every FAD dimension in Step 2, after controlling for the demographic variables in Step 1.

Strategy 2: Unique effects

Unique effects strategy: In contrast with the previous strategy, a single regression analysis was conducted, in which **BDI scores were regressed on all the FAD dimensions concurrently**, thus controlling for the overlap between FAD dimensions. In this strategy. Pratt's measure was calculated (Pratt, 1987). This measure is aimed to identify unique effects of predictors in a multiple regression analyses, and one of its important attributes is that their aggregation across the different predictors equals the overall explained variance (R^2).

Results

Strategy 1: One-by-one regression equation

Table 1 shows the results of the first analytical strategy, in which BDI scores were regressed separately on each FAD dimension. Thus, no control for the presumably common variance between family dimensions was performed. Following this strategy, the six FAD dimensions significantly predicted BDI scores.

Table 1. Effects of demographics and FAD dimensions for the prediction of BDI using one equation per dimension.

		β
Step 1		.
(for all equations)	Gender	.007
	Age	-.041
	SES	-.120*
Step 2		
Equation 1	Problem Solving	.243***
Equation 2	Communication	.241***
Equation 3	Roles	.293***
Equation 4	Affective Responsiveness	.337***
Equation 5	Affective Involvement	.330***
Equation 6	Behavioural Control	.291***

* p ≤ .05, *** p ≤ .001

When everything explains, nothing is explained

Following this strategy, all the family variables significantly predicted BDI symptoms –even at the highest significant level- were they tested separately. These indiscriminative significant effects turn to be meaningless regarding the information about the specific family functioning characteristics responsible for adolescent depression.

Strategy 2: Unique effects

Table 2 shows the results of the second analytical strategy, controlling for the shared variance between FAD dimensions. Following this strategy, only two out of the six dimensions significantly predicted BDI, and one approached statistical significance.

Table 2. Unique effects of demographics and FAD dimensions for the prediction of BDI.

	β	Cross product β*r	Pratt's measure d = (β* r) / R2
Gender	.038	.001	.004
Age	-.034	-.001	-.005
SES	-.096*	.011	.069
Problem Solving	-.025	-.006	-.039
Communication	-.049	-.012	-.076
Roles	.052	.016	.098
Affective Responsiveness	.213***	.072	.453
Affective Involvement	.159**	.051	.322
Behavioural Control	.093+	.028	.174
		∑ β*r = R2 =.16	∑ d = 1

∑ d = .775   ∑ d = .949

*p ≤ .05; ** p ≤ .01; *** p ≤ .001; + p ≤ .10.

Fewer significant variables, better explanation

Pratt's measure revealed that the two affective variables (Affective Responsiveness and Affective Involvement) accounted for the 77.5% of the variance explained by the regression model, which reached the 94.9% when Behavioural Control is added.

Conclusions

At a methodological level

- ❖ Our results show the need for controlling the shared variance between family dimensions before reaching any conclusion about their contribution to depressive symptoms.
- ❖ The wide range of results found in previous literature should be reexamined in light of the communality between family variables, which likely generates false positives.

At an applied level

- ❖ Our results show that the family affective aspects are the most important regarding adolescent depression. Affective variables account for the 77.5% of the family functioning contribution to adolescent depressive symptoms.
    - Affective Responsiveness is related to the expression of love and tenderness between family members.
    - Affective Involvement is related to the interest of family members towards other family members.
- ❖ Behavioural Control is also relevant in the prediction and prevention of adolescent depressive symptoms, accounting the three up to 94.9%.
    - Behavioural Control is related to the observation of rules within the family.
- ❖ These results show the importance of an **adequate affective climate** within the family **compatible with the observation of clear-cut rules** in order to prevent depressive symptoms in adolescents.

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