

Family Functioning and Academic Self-Efficacy: The Mediating Effect of Emotion Regulation

Funcionamiento Familiar y Autoeficacia Académica: Efecto Mediador de la Regulación Emocional

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Abstract

Family functioning can have an impact on the processes of emotion regulation, which in turn impact students' perception and judgment of their own skills. In order to analyze this, the mediating effect of emotion regulation strategies on the relation between family functioning and academic self-efficacy in Mexican students was examined for the first time. This research had a quantitative and cross-sectional correlational design, and it included 729 Mexican high-school teenagers. Results showed that the model had an adequate fit, confirming that family cohesion, flexibility, and communication have an indirect impact on academic self-efficacy –composed of participants' academic confidence, effort, and understanding, through emotion regulation, namely through reappraisal and mindfulness strategies. Thus, it was possible to acquire a more accurate understanding of how emotion control impacts the processes involved in academic self-efficacy. The results suggest that those students who, concerning their daily activities, can be aware of internal processes and external aspects surrounding them, and who are also capable of changing the meaning of an emotional experience, will be able to reappraise their school activities according to their own goals, reappraise situations involving a problem they feel they cannot solve in the best way, or reappraise the feelings they experience when

performing academic activities. In conclusion, the pioneering nature of this research confirmed that emotion regulation strategies mediated the relation between family functioning and academic self-efficacy, by helping to explain the association between emotion regulation strategies and the perception of Mexican teenage students of their confidence in the development of their academic activities, the effort they make to accomplish them, and their understanding of those activities.

Keywords: academic self-efficacy, emotion regulation, communication, family cohesion, flexibility, reappraisal, mindfulness, acceptance.

Resumen

Las implicaciones vinculadas al empleo durante los estudios representan un tema de investigación que debe ser valorado rigurosamente con el fin de encontrar la fórmula más adecuada para que los estudiantes universitarios tengan una inserción laboral exitosa una vez acaben su formación. Por ello, el principal objetivo de este artículo es encontrar el efecto de estar empleado durante los estudios, diferenciando la naturaleza del empleo, sobre el éxito de los egresados universitarios en su inserción al mercado de trabajo. Se realizan varios modelos *probit* con corrección de selección con el fin de valorar los efectos concernientes a la citada relación. Como variables dependientes, se utilizan cuatro indicadores que recogen la calidad del empleo a partir de la estabilidad, la adecuación y la remuneración del mismo. La variable explicativa de interés, el trabajo durante los estudios, se clasificará atendiendo al tipo de jornada y su relación con la formación del egresado. Con el fin de tener una visión más amplia, se estudia tanto el primer empleo tras terminar la universidad, como el empleo que tienen los individuos en el momento de realización de la encuesta. Los datos utilizados para realizar estos modelos proceden de la Encuesta de Inserción Laboral de Titulados Universitarios (EILU), elaborada por el Instituto Nacional de Estadística. Los principales resultados muestran un efecto positivo del empleo estudiantil a jornada completa sobre la probabilidad de tener un trabajo estable y mejor remunerado. Por otro lado, la conexión del trabajo estudiantil con el área de estudios del egresado supondrá una menor probabilidad de estar sobrecualificado, así como una mayor probabilidad de situarse en los quintiles más altos de base de cotización. Por último, se encuentra que la magnitud de los efectos es menor en el momento que se realiza la encuesta si se compara con el primer trabajo.

Palabras clave: Inserción laboral, universitarios, calidad del empleo, educación superior, trabajo estudiantil.

Introduction

Family functioning and the emotion regulation processes that develop from family relationships are two essential factors for analyzing school performance, particularly academic self-efficacy. Having a deep understanding of the reasons behind remarkable differences in students' academic self-efficacy has always been a concern for researchers and educational institutions. Several investigations have sought to find the impact of family functioning and emotion regulation on the lives of students in and out of their classrooms (e.g., Adeniji, Akindele-Oscar & Mabekoje, 2020; Ki, 2020; Llorca, Richaud & Malonda, 2017; Pinguart & Kauser, 2018); however, there are still questions that need to be answered.

Among the models that have been created to analyze family functioning, the one proposed by Olson, Sprenkle and Russell stands out. They developed the Circumplex Model with the objective of studying the impact of family cohesion, flexibility, and communication. According to Olson, Sprenkle and Russell (1979), Cohesion is defined as the emotional ties established among family members. Flexibility refers to the ability a family has to make a series of changes concerning the leadership, roles, and rules established within the family system. As for Communication, in the Circumplex Model it refers to the positive communication skills employed within the family environment. This Model has been used to explain the impact of family functioning on academic self-efficacy. Specifically, findings have documented that family communication has a direct impact on increasing academic self-efficacy (Hashemi, Kooshesh, & Eskandari, 2015). For example, a study that included Caribbean high school students found that living in a family environment with high levels of cohesion and flexibility had a positive impact on students' beliefs of academic self-efficacy (Stubbs & Maynard, 2017).

Family functioning is a particularly important predictor not only of academic self-efficacy, but also of the process of emotion regulation in students. Family members are determinants of the emotion regulation process of adolescents. According to the model proposed by Thompson (1994), emotion regulation consists of a series of extrinsic and intrinsic processes by which people monitor, evaluate, and modify their emotional reactions, particularly the temporal characteristics and intensity of these reactions, to achieve their goals. Usually, the process of emotion regulation is a conscious one, performed with a specific intention.

However, it can also occur unconsciously, without a clearly identified purpose (Braunstein, Gross, & Ochsner, 2017). The study of emotion regulation has led to the analysis of two types of emotion regulation strategies: Adaptive and maladaptive. In this research, we will focus on the adaptive strategies, which have been associated to long-term effects directly impacting mental and physical health. In addition to mitigating the consequences of negative emotions, adaptive strategies are a key factor in achieving academic success and good social functioning (Gross, 2013). These strategies have a cognitive and a behavioral component that enables the interaction between emotional information and cognitive control. Outstanding adaptive strategies include reappraisal, mindfulness, attention, problem solving, positive re-focusing and direct request (Hu, Zhang, Wang, Mistry, Ran, & Wang, 2014; Schäfer, Naumann, Holmes, Tuschen-Caffier, & Samson, 2017). In line with the objective of this research, we were interested in analyzing the effects of reappraisal, acceptance, and mindfulness. The reappraisal strategy has been widely studied and is considered a key element of emotion regulation. Through reappraisal, people give new meaning to emotional events in such a way that they can modify their understanding of those events (McRae, Ciesielski, & Gross, 2012). Acceptance refers to approving thoughts about what has happened and what has been experienced (Garnefski, Kraaij, & Spinhoven, 2002). Finally, Mindfulness allows paying attention to the experiences occurring at the present moment, accepting them as they are and avoiding an evaluation of them (Brown & Ryan, 2003).

As a result of the years of interaction within the family, parents are usually the primary instructors of emotion regulation processes for their children. Specifically, it has been identified that children with negative emotional responsiveness come from family environments characterized not only by serious communication gaps and low cohesion, but also by a lack of support among family members and the inability to counteract mental dysfunction at home (Rabinowitz, Osigwe, Drabick, & Reynolds, 2016).

In contrast, very few studies have documented the significant impact of emotion regulation processes learned within the family on academic self-efficacy. For example, frequently experiencing positive emotions has an impact on students' cognitive and behavioral processes, as well as on their academic commitment (Putwain, Sander, & Larkin, 2013). Likewise, positive emotions such as hope, joy, and pride are essential for students

not only to be interested in and strive for academic activities, but also to become academically self-efficient, thus ensuring academic success (Pekrun, Goetz, Perry, Kramer, Hochstadt, & Molfenter, 2004).

Scientific literature has identified that those students most committed to their academic performance and thus those who get better grades, who participate actively, study persistently for and put effort in their different courses, tend to show high levels of academic self-efficacy (Alyami et al., 2017; Caraway, Tucker, Reinke, & Hall, 2003). This type of self-efficacy refers to the confidence students have in their own skills. Confidence not only allows students to perform their academic activities satisfactorily, but also acts as a motivational force in their learning process (Bandura, Freeman, & Lightsey, 1999). In particular, academic self-efficacy is based on the perception and judgment each student has of their own abilities – which do not necessarily match their real skills, and therefore determines their control over their own learning process and consequently their academic performance (Liu, Gao, & Ping, 2019). That is why academic self-efficacy has been a constant benchmark for evaluating academic success (Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2011).

While the effects of family functioning, emotion regulation, and academic self-efficacy have been thoroughly investigated, our search in the literature did not lead to a study proposing a model of mediation between these three constructs. In order to fill this gap in the scientific literature, the objective of this research was to examine the mediating effect of emotion regulation strategies on the relation between family functioning and academic self-efficacy. A second objective was to analyze the relation between family functioning and emotion regulation strategies, as well as between emotion regulation strategies and academic self-efficacy. On this basis, we hypothesized that: H1) Emotion regulation strategies might mediate the relation between family functioning and academic self-efficacy, and they might help explain the relation between emotion regulation strategies and the perception of confidence in task performance, the effort put in task conduction, and the understanding of the task among Mexican adolescents. H2) When there is more flexibility, cohesion and communication among family members, there might be a greater use of adaptive emotion regulation strategies –mindfulness, reappraisal, and acceptance. H3) If the use of adaptive emotion regulation strategies increases, there would be a higher level of academic self-efficacy among the Mexican students participating in this study.

Method

This research has a cross-sectional and quantitative correlational design which was carried out in central Mexico.

Sample

This research was carried out with the participation of 729 adolescents (52.26% are women and 47.74% are men). The type of sampling used was a convenience sampling (a non-probabilistic approach) and came from seven high schools located in the State of Mexico. Four of them are public and three are private. At the time of data collection, the participants were studying one of the six semesters that make up the high school level in Mexico. On average, the participants were 15.93 years old ($SD = 1.38$) with values that ranged from 14 to 21 years. Most of the participants (78.46%) mentioned living at home with both parents, 17.42% lived with one of the two parents and 4.12% did not live with their parents. Regarding the proportion of students per semester, 34.01% were studying the second semester, 37.17% were in the fourth semester and 28.82% were studying the last semester. There were no exclusion criteria, and no financial compensation was offered for their participation.

Instruments

Family functioning was measured with the Family Adaptability and Cohesion Evaluation Scale (FACES IV) developed by Olson (2010). The scale includes 42 items divided into six scales: balanced cohesion and balanced flexibility, disengaged and enmeshed cohesion, and rigid and chaotic flexibility. It also includes two other subscales (Family Communication Scale and Family Satisfaction Scale). For this study, the dimensions of Balanced Cohesion and Balanced Flexibility were applied (which evaluate the functional/moderate aspects of these two dimensions), as well as Family Communication subscale. Cohesion measures the emotional bond that occurs between family members. Flexibility refers to the ability of the family in general to carry out processes of change to the interior

and exterior of the family. The Communication dimension measures the capacity of the members of the family to listen to each other, express their ideas and experiences, as well as the respect they have for listening the opinions of others. The participants evaluate the level of agreement they have with each of the statements on a 5-point Likert type scale ranging from 1 (totally disagree) to 5 (totally agree). In this research, the Spanish version proposed by Rivero, Martínez-Pampliega and Olson (2010) was used. The reliability of the scale in its dimensions has ranged between .77 and .89 (Olson, Gorall, & Tiesel, 2006). The validity of the scale has shown adequate properties ($\chi^2 = 2,058.76$, $df = 804$, $p < .001$; IFI = .97, CFI = .97, RMSEA = .058) (Olson, 2011).

The emotion regulation construct was measured using the scales of three instruments.

The Mindful Attention Awareness Scale-Adolescents [MAAS-A] developed by Brown, Ryan, Loverich, Biegel and West (2011) was used to measure the mindfulness emotional regulation strategy. This instrument is unidimensional in nature and includes 14 items. The objective of the scale is to assess the awareness and attention capacity that adolescents have regarding the events they experience daily. The response options are offered in a Likert-type format ranging from 1 (almost never) and 6 (almost always). In this research, the Spanish version of the MAAS-S proposed by Calvete, Sampedro and Orue (2014) was selected. Because the wording of the items indicates the absence of mindfulness, these were inversely coded in such a way that higher scores show a higher level of mindfulness. The psychometric properties of the scale both and in its original version as in this adaptation have been very adequate. An internal consistency has been reported oscillating between $\alpha = .82$ and $\alpha = .84$. Likewise, the unidimensional structure of the scale explained 32.5% of the variance (Brown et al., 2011).

Regarding the Reappraisal emotional regulation strategy, to measure this variable the Emotion Regulation Questionnaire [ERQ] constructed by Gross and John (2003) was used. This instrument contains 10 items distributed in two dimensions (Cognitive Reappraisal and Expressive Suppression). In this research only the Cognitive Reappraisal dimension was included which measures the ability to give positive meaning to those experiences that have negative emotions. Participants answered the six questions that this dimension contains using a Likert-type format of seven options ranging from 1 (Totally disagree) to 7 (Totally

agree). For the present study, the Spanish version proposed by Cabello, Salguero, Fernández-Berrocal and Gross (2013) was used. In the analysis of its psychometric properties, a Cronbach's alpha for the Reappraisal dimension of .79 was found. Item-total correlations ranged from .41 to .62. Likewise, the test-retest reliability with an interval period of 3 months was .64 (Cabello et al., 2013).

With the purpose of measuring the Acceptance variable, the Cognitive Emotion Regulation Questionnaire (CERQ) designed by Garnefski, Kraaij and Spinhoven (2001) was selected. This is one of the most used instruments to measure emotion regulation strategies, which was built with the aim of analyzing not only the general cognitive style, but also the type of emotion strategy used to manage an emotional situation. With a total of 36 items divided into nine factors (Acceptance, Positive Focusing, Positive Reappraisal, Putting in Perspective, Focusing on Plans, Self-blame, Rumination, Blaming Others and Catastrophizing) this scale examines maladaptive and adaptive emotion regulation strategies. For the purposes of this research, only the Acceptance dimension was included. Through this dimension, it is measured how people are able to accept any unpleasant event they have experienced. The Spanish version developed by Domínguez-Sánchez, Lasa-Aristu, Amor and Holgado-Tello (2013) was used in this research. To respond to this scale, five response options are presented in a Likert-type format that ranges from 1 (almost never) to 5 (almost always). Adequate indices have been found in the several studies that have analyzed its psychometric properties. For internal consistency, Cronbach's alphas have ranged between .68 and .93. Likewise, the CERQ has obtained good indicators of convergent and discriminant validity (Garnefski & Kraaij, 2007).

Academic self-efficacy was measured using the School Self-efficacy Scale (ACAES) created by Galleguillos-Herrera and Olmedo-Moreno (2019). The scale assesses the perceptions of students regarding the abilities they possess to achieve their academic activities. The scale consists of 18 items grouped in 3 dimensions. The first one called Confidence in task performance measures the own perception with respect to the capacity that one possesses to carry out adequately the school activities. The second dimension, Effort put in task conduction, analyzes the perception of the effort required to achieve academic goals. The last dimension, Understanding of the task, measures the perception that one has regarding the understanding of what each of the academic activities

implies in order to plan school performance. The scale is answered in a Likert-type format with 5 options ranging from 1 (I can never) to 5 (I can always). In its original version, the scale explained 57.04% of the variance and it has a Cronbach's Alpha of 0.917 for the total scale (Galleguillos-Herrera & Olmedo-Moreno, 2019).

Procedure

Participants were recruited from seven high schools located in Mexico's central region. Four of them were public and three private schools. After been granted the respective authorization from the management of each of these high schools, the groups involved in the investigation were considered. Since this was a non-probability convenience sampling, the coordinator or counselor at each institution was contacted, and they indicated which groups were available to participate, depending on their schedule and activities. Each group had 20-45 students. The students who were present when data was collected received general information about the research –its objectives, their rights as participants, the process to preserve the anonymity and confidentiality of the data. Once they were given this information, the students who decided to participate voluntarily signed the informed consent and received the questionnaires to be completed. Students received no financial compensation for their participation. On average, it took them 25 minutes to complete all the scales.

Data Analysis

First, several descriptive analyzes were carried out which included the mean and standard deviation, as well as bivariate correlation analysis between the study variables. Subsequently, a structural equation model was designed which included three latent variables. The first of them is Family Functioning which includes three indicators: Cohesion, Flexibility and Communication. In turn, the latent variable of Emotional Regulation included the indicators of Mindfulness, Reappraisal and Acceptance. Likewise, the latent variable of Academic Self-efficacy includes three indicators: Confidence in task performance, Effort put in task conduction,

and Understanding of the task. The analysis of this model was carried out using the SPSS program version 25.0 and the LISREL program 8.8 (Jöreskog & Sörbom, 1996) using the maximum likelihood procedure. On the other hand, the mediation analysis for this research included the reports that each participant provided concerning the predictors (Cohesion, Flexibility and Communication), the mediation variables (Acceptance, Mindfulness and Reappraisal) and the criterion variables (Confidence in task performance, Effort put in task conduction, and Understanding of the task). In order to test the general fit of the model, various criteria were used: the Comparative Fit Index (CFI), the Tucker-Lewis index (TLI), the Standardized Mean Square Residual (SRMR) and the root mean square error of approximation (RMSEA). The good fit of the model is obtained by finding values equal to or higher than .95 for the CFI and the TLI, as well as values close to .06 for the RMSEA and values less than .08 for the SRMR (Hu & Bentler, 1999; Schumacker & Lomax, 2016).

Results

In order to know the general characteristics of the study participants, Table 1 shows the descriptive information they provided when answering instruments used in this research. The bivariate correlations between the study variables are also included in this table.

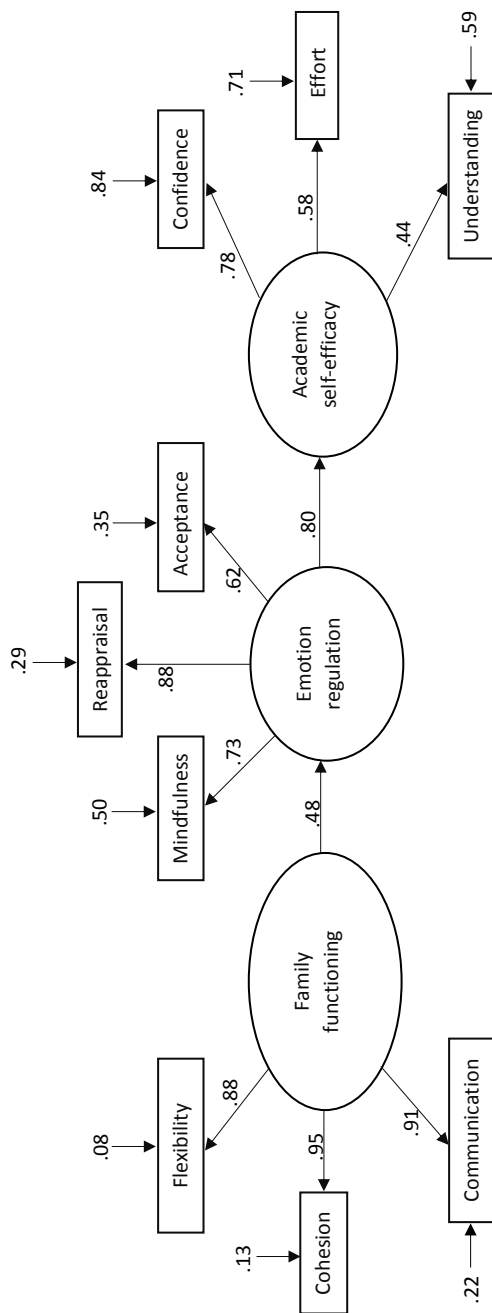
TABLE I. Mean, Standard deviation and correlations between study variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | M | SD |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|----|-------|------|
| 1.Cohesion | -- | | | | | | | | | 21.88 | 3.32 |
| 2.Flexibility | .88** | -- | | | | | | | | 15.71 | 2.58 |
| 3.Communication | .70** | .57** | -- | | | | | | | 33.74 | 5.76 |
| 4.Acceptance | .25** | .33** | .40** | -- | | | | | | 8.82 | 1.01 |
| 5.Mindfulness | .13 | .29** | .32** | .58** | -- | | | | | 48.60 | 7.11 |
| 6.Reappraisal | .42** | .25** | .28** | .42** | .68** | -- | | | | 31.67 | 4.13 |
| 7.Confidence | .21** | .30** | .30** | .49** | .50** | .55** | -- | | | 30.36 | 4.81 |
| 8.Effort | .15* | .10 | .22* | .28** | .24** | .48** | .59** | -- | | 19.18 | 1.76 |
| 9.Understanding | .11 | .18* | .33** | .44** | .32** | .27** | .47** | .58** | -- | 10.08 | 1.85 |

*p < 0.05; **p < 0.01

Second, in order to examine the main objective of this research, a measurement model and a structural equation model were analyzed. Regarding the measurement model, it describes the relations between the observed variables and the latent constructs that include each one of them. On the other hand, the structural equation model describes the relation between the latent variables (Tabachnick & Fidell, 2018). The model created for the present research specifies that family functioning is related to emotion regulation and that emotion regulation, in turn, is associated with academic self-efficacy. In the model that was designed, the direct effects of family functioning on academic self-efficacy were not specified because it was hypothesized that family functioning would have indirect effects on academic self-efficacy through the mediating role of emotion regulation. The results revealed that the model showed an adequate fit ($X^2/df = 43/20$, CFI = .98, TLI = .95, SRMR = .02, RMSEA = .04). Specifically, the effects of family functioning on emotion regulation were significant (standardized path coefficient = .48; $z = 4.28$) indicating that high levels of family functioning were related to high levels of emotion regulation. In turn, emotion regulation was significantly associated with academic self-efficacy (standardized path coefficient = .80; $z = 5.38$), showing that high levels of emotion regulation were related to high levels of academic self-efficacy. Likewise, the indirect effects of family functioning on academic self-efficacy ($z = 3.74$) were significant, indicating that emotion regulation had a mediating role between the family functioning of the students who participated in this research and their academic self-efficacy.

FIGURE 1. Final model of family functioning, emotion regulation and academic self-efficacy.



Note: Structural equation model showing the relations between family functioning, emotion regulation and academic self-efficacy. The values are the standardized coefficients. All coefficients are significant at $p < .05$.

Based on these results, the hypothesized theoretical model suggested that family functioning predicts academic self-efficacy via emotion regulation. Figure 1 shows the standardized path coefficients that were found in the relations between family functioning, emotion regulation, and academic self-efficacy. All coefficients were significant at .05. Based on the values found, it is possible to show that emotion regulation has a mediating function between family functioning and academic self-efficacy. Thus, a high level of family functioning was a significant predictor of the highest indices of emotion regulation, which in turn became a significant predictor of the highest levels of academic self-efficacy.

Discussion

This research examined for the first time a model of mediation between family functioning, emotion regulation, and academic self-efficacy in Mexican students. The most important result of this study confirmed that family cohesion, flexibility and communication have an indirect impact, through emotion regulation, on academic self-efficacy. Specifically, students with high levels of emotion regulation processes showed better academic self-efficacy than those with poor reappraisal, mindfulness, and acceptance. Since there were no studies measuring the mediating effect of emotion regulation strategies between these two constructs, our results are the first ones allowing the elucidation of why family functioning can predict academic self-efficacy through emotion regulation.

With regard to the relation between family environment and emotion regulation, our results suggest that living in a family environment that fosters cohesion, flexibility and communication between family members has important effects on the emotion regulation process of children. Based on the correlation analysis conducted, the results we found support this. Of the nine correlations between each of the three dimensions of family functioning and the three dimensions of emotion regulation included in this research, all were statistically significant, except one. According to the magnitude of the correlations found, the relation between family cohesion and reappraisal ($r = .42, p < .01$), and the relation between communication of family members and acceptance ($r = .40, p < .01$) stand out. These findings show the strong relation between family functioning

and the emotion regulation strategies that parents raise and develop in their children.

The same results had been previously found in other parts of the world and with different samples. For example, in children and teenagers living in high-risk communities with remarkable high rates of violence, it was found that family flexibility and cohesion functioned as protective factors, allowing youngsters to better regulate their negative emotions, especially those related to anger (Houlberg, Henry, & Morris, 2012). In these circumstances, the ability to adapt to changes and the quality of the ties within the family function as an indispensable mechanism for controlling emotions. Likewise, the mother's ability to regulate her own emotions is one of the main factors directly influencing the building of adequate family cohesion and flexibility (Demby et al., 2017). In turn, a study recently conducted in the Hispanic community living in the United States identified family cohesion as related to the presence of various emotion regulation strategies (Cano et al., 2020). In contrast, when parents have deficiencies in managing their emotions, communication with their children deteriorates significantly, which in turn leads to parents feeling more overwhelmed and stressed by problems, displaying a more hostile treatment, tending to distance themselves, and reducing to a great extent their support and signs of affection towards their children (Li, Bai, Zhang, & Chen, 2018).

In addition to the empirical evidence that we provide by documenting the relation between family functioning and emotion regulation, it is important to note that, according to the Circumplex Model, one of the possible explanations for this outcome would be the creation of emotional ties within the family. Since they are young, children begin to develop the foundations of what will be their own processes of emotion regulation. With their parents and other family members as primary models, children learn a series of strategies that allow them to manage their emotions in different circumstances. Family support throughout childhood and adolescence will be a determining factor in the ability of children to control their emotions, especially when facing situations that involve negative emotions. Likewise, the Circumplex Model also explains the impact of family communication on the development of a functional emotion regulation. The intensity and frequency with which family members can express themselves positively or negatively influences how the family environment that will prevail within a family is built (Fosco &

Grych, 2013). In turn, parents who successfully communicate with their children have the opportunity to transmit and teach them a series of strategies for emotional management.

Just as in the results for the relation between family functioning and emotion regulation, the analysis of the correlations between emotion regulation strategies and factors of academic self-efficacy also showed statistically significant relations between all variables. Overall, it was possible to confirm the decisive impact that the control and management of emotions has on the creation and the development of the academic self-efficacy of the students participating in this study. These findings are in line with others previously found in different parts of the world. For example, in a study conducted in Peru with university students, the results showed that emotion regulation strategies, specifically plan-focusing and acceptance, were significantly related to academic self-efficacy (Domínguez-Lara & Sánchez-Carreño, 2017). Therefore, students who are able to accept unpleasant experiences without judging them and who manage to focus on problem solving by concentrating on their own plans tend to feel more confident about their own academic skills, have a better understanding of their school goals, and strive more to achieve them. In addition, in another research, which included Australian university students, the mindful awareness strategy showed a significant relation with academic self-efficacy (Keye & Pidgeon, 2013). Likewise, a path analysis allowed finding that two other strategies of emotion regulation, in this case mindfulness and positive reappraisal, were also related to academic self-efficacy. Specifically, the mechanisms of aware acting, observation, and description, pertaining to mindfulness, had direct effects on academic self-efficacy, while the absence of reaction had an indirect effect on academic self-efficacy (Hanley, Palejwala, Hanley, Canto, & Garland, 2015).

With regard to the main objective of this research, the results confirmed for the first time the mediating role of emotion regulation in the relation between family functioning and academic self-efficacy. Our analyses showed that family functioning led to academic self-efficacy, primarily through the reappraisal and mindfulness strategies. This finding suggests that family cohesion, flexibility, and communication have an impact on the paths leading to academic self-efficacy through emotion regulation strategies. The analyses conducted in this research led to interesting findings. Firstly, we identified that the emotion

strategy of reappraisal had the most significant effects on the academic confidence, understanding, and efforts of participants. Therefore, those students who, concerning their daily activities, are capable of changing the meaning of an emotional experience, will also be able to reappraise their school activities according to their own goals, reappraise situations involving a problem they feel they cannot solve in the best way, and reappraise the feelings they experience when performing their academic activities. Previous investigations have also documented that reappraisal produces a state of psychological well-being, improves functioning in interpersonal relationships, encourages reinterpretation of events, acts as a protective factor against negative experiences, allows individuals to focus on the situation they are currently experiencing, and changes the emotional effect of the situations and their corresponding personal relevance (e.g., Brockman, Ciarrochi, Parker, & Kashdan, 2017; Dryman & Heimberg, 2018, Livingstone & Isaacowitz, 2018; Zilverstand, Parvaz, & Goldstein, 2017). Applying the reappraisal strategy to the school environment would be an indispensable resource to encourage students to seek for themselves the opportunities and learning resources with which they will achieve their academic goals. Due to the lack of past studies examining the effects of the reappraisal strategy on academic self-efficacy, this research allows us to understand for the first time the importance of giving new meaning to the emotional events that students experience on a daily basis in their school activities.

Likewise, the ability to become aware of our own internal processes – cognitive, emotional, and physiological, as well as of the external elements surrounding us, is a significant factor in our perception of our intellectual abilities. Just as in the present research, previous studies with university students had already identified the direct effects in academic self-efficacy of various aspects inherent in mindfulness, such as observation, aware acting, and the ability to describe one's feelings (Hanley et al., 2015). Based on our results, we can affirm that by becoming aware of the emotional processes they experience in their school activities, students are able to better perceive their school commitments, feel more autonomous and motivated to achieve their goals, have greater control and act proactively taking responsibilities. This suggests that, by internalizing and reflecting on the everyday experiences they go through at school, students develop the different skills inherent in academic self-efficacy.

Finally, the acceptance strategy also had a major impact on students' perception of their own abilities. Our search for investigations examining the effects of acceptance on academic self-efficacy led us to none. Therefore, our results allow us to show for the first time how, through the acceptance strategy, students are able to transform their experiences, which turns into a higher academic self-efficacy. One possible explanation for this would point out that, by admitting negative emotions without pretending to judge or change them, students are not only more competent, persistent, and autonomous, but also more striving and confident about their skills.

One of the limitations of this research is its transversal nature, which does not permit to know how the emotion regulation strategies employed by the participants of this study will evolve when they get to college and whether these strategies will continue to have the same impact on students' academic self-efficacy. A second limitation lies in the predictors of emotion regulation. The design proposed in this research included family functioning as the factor that would directly impact emotional regulation strategies. However, no other factors of importance in the development of emotion management, such as teachers, schoolmates, or friends with whom students have a close link, were included. A third limitation is the lack of comparisons between males and females, or between students in public and private schools.

Conclusions

The pioneering nature of this research confirmed for the first time that emotion regulation strategies mediate the relation between family functioning and academic self-efficacy. Since that was the main objective of this research, a model of structural equations was created to examine the mediating effect of emotion regulation. The results confirmed that this model had an adequate fit, showing that family functioning predicted academic self-efficacy through emotion regulation. As for the secondary objective, which was to analyze the relation between family functioning and emotion regulation strategies, as well as between emotion regulation strategies and academic self-efficacy, the findings showed that the direct effects of family functioning on emotion regulation were significant, indicating that high levels of family functioning are related to high

levels of emotion regulation. Emotion regulation was also directly and significantly correlated to academic self-efficacy. Therefore, these specific results helped explain the relation between emotion regulation strategies and the perception of confidence in task performance, the efforts put in task fulfillment, and the understanding of the task in Mexican adolescents.

With regard to the hypotheses posed, the structural equation model also confirmed that the presence of greater flexibility, cohesion and communication among family members led to a higher use of adaptive emotion regulation strategies –mindfulness, reappraisal, and acceptance. Meanwhile, the increased use of adaptive emotion regulation strategies led to a higher level of academic self-efficacy, specifically in the perception of confidence in task performance, the effort put in the accomplishment of the task and the understanding of the task among the Mexican students who took part in this research.

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