

Relationship between concentration and school anxiety, study with Chilean secondary education adolescents

Abstract

A study was done that analyzed the influence between concentration and school anxiety; 4156 Chilean secondary education students participated. The instruments used were the School Anxiety Inventory (SAI) and the Learning and Study Strategies Inventory: High School Version (LASSI-HS); both validated with a Chilean sample showing good indicators of reliability. The relationship was analyzed with logistic regression. The result demonstrates that an inverse and causal relationship exists between concentration and school anxiety, achieving a predictive ability. The possibility of performing attention control strategies focused on cognitive and behavioral elements of anxiety is analyzed to improve its management.

Keywords: concentration, school anxiety, adolescents, socialization

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Abbreviations: SAI, school anxiety inventory; LASSI-HS, learning and study strategies inventory: high school version

Introduction

The cognitive and emotional variables that influence the academic performance of students are of special scientific and academic interest, highlighting of these, anxiety and concentration. The literature demonstrates that anxiety can constitute a risk factor, being that high levels of anxiety can cause problems on a personal, social and academic plane in a context that is valued as the most important instance for socialization and knowledge transference. As a disorder, anxiety is one of the most prevalent problems in the child and youth population,¹⁻⁶ being also a disorder that has increased exponentially during the last decades.^{7,8} In Chile, epidemiological studies indicate that 8.3% of children and adolescents present anxiety disorders associated with a functional limitation,^{8,9} and it has a high rate of comorbidity with substance addiction, depressive symptoms and aggressive behavior.¹⁰⁻¹²

Consequently, school anxiety understood as an emotional manifestation expressed by cognitive, psycho physiological and motor responses that an individual emits in situations that he himself evaluates as threatening, ambiguous or dangerous,¹³⁻¹⁵ is a problem that raises an interest today that is increasing, although it is believed that it is still preliminary. Nevertheless, the results with that which is the Chilean actuality, reveals the large influence that other important scientific variables have over school anxiety. Therefore, it is possible to point out the influence of the low perception of self-efficacy,¹³ or a maladaptive causal attributional style¹⁴ among the variables that predict and allow for sizing its complexity and scope. The relationship between anxiety and attention capacity has been explored^{16,17} even when there are no reports establishing an influence between these variables. Attention is a complex cognitive process that allows one to focus the senses on an external or internal stimulus;¹⁸ it can be divided into three subcomponents, selective, divided and sustained attention.¹⁹

Sustained attention is the process of cognitive direction towards a particular task by focusing attention for a certain period of time, which is also known as concentration.¹⁹ This is relevant because of its role in school learning processes, as well as in decision making

processes.^{18,19} Robinson et al.,¹⁶ as well as Choi et al.,¹⁷ indicate that anxiety influences the mechanisms of attention control, in both patients with emotional disorders and in subjects without emotional difficulties. From these findings, it is believed that concentration can be modulated or better can modulate anxiety. This study is looking to establish if the concentration, as a relevant cognitive ability, predicts the high anxiety in Chilean secondary education students, with the purpose of establishing this causal relationship. The proposed hypothesis is that a higher concentration will be able to decrease school anxiety.

Methods

Participants

In this study, 4156 secondary education students participated from 25 educational centers from 7 counties of the Ñuble providence in Chile. The age range of the students of the sample was from 12 to 18 years old ($M=15.31$; $SD=1.42$) from all grades of Chilean's high school. Of the total, 2206 are women, equivalent to 53.1% and 1950 men, or 46.9% of the total.

Instruments

To evaluate school anxiety, the Chilean adaptation of the School Anxiety Inventory (SAI) was used.²⁰ The instrument is formed by three scales that measure the responses of cognitive anxiety, psychophysiological anxiety, motor anxiety and four factors that measure school situations. This instrument has a total of 25 school situations and 15 responses (5 cognitive, 5 psychophysiological and 5 motor). To respond, the subject is provided with a Likert of 4 points (0=never to 4=always), indicating with a number the frequency with which they present a certain response to the situation presented. A higher score indicates a higher school anxiety. In previous studies^{21,22} values of internal consistency of whole scale was .91 up to .91, considering this scale adequate. Cronbach's alpha for subscales was .93 for social evaluation anxiety scale, .92 for school fail and punishment, so for aggressive situation anxiety; and finally, .88 for school assessment anxiety. In addition, Cronbach index for types of response's scales was .86 to cognitive and psychophysiological anxiety and .82 to motor anxiety.

For concentration assessment, the Learning and Study Strategies Inventory, High School Version (LASSI-HS) was used, adapted by Badier²³ for a Chilean population. The LASSI-HS contains 76 items, evaluated by a Likert scale of 5 points (1=a lot, 0=nothing). The concentration factor from this test was used, defined as the ability of students to maintain and direct their attention towards academic tasks.²³ Inglés et al.,²² in a sample consist of 2022 Spanish secondary students, founded a reliability index (using Cronbach's alpha) of .81, for concentration factor. In addition, Freiberg, Ledesma & Fernández²⁴ report a reliability index of .76 for concentration factor. The present study reached the same Cronbach' value founded in Inglés et al.²² study's (.81).

Analysis of data

The data was analyzed by statistical regression techniques, following the stepwise regression procedure based on the Wald statistics, a model that allows for estimating the probability that a result will occur as a function of the presence of a predictor. The predictive capacity is determined by the OR statistic (odd ratio) which is interpreted, following De Maris²⁵ as follows; if the value OR > 1, the

prediction is positive, if OR < 1 the prediction is negative and if OR = 1 this indicates that there is no prediction. To perform the analysis of this study the criterion variable (school anxiety) was dichotomized considering two groups; one that includes the scores equal or lower than the 25 percentile defined as low school anxiety and the other with the scores equal or higher than the 75 percentile as high school anxiety. The predictor variable -concentration- was considered as a continuous variable. All the analysis was completed with the software SPSS 21 version.

Results

An inverse and causal relationship between the variables is observed. Regarding the variable concentration (CON), the model allowed to make an estimation of 59.4% of the cases ($\chi^2 = 10.80$; $p < .001$) data that permits an affirmation that this variable is predictive of school anxiety. Thus, a higher score in this variable predicts a lower level of school anxiety. The components of the model expressed by the odd ratio (OR) indicate that the probability of presenting a high school anxiety is lower, it is .07% lower for each point of increase of the concentration variable (Table 1).

Table 1 Binary logistic regression for the probability of high school anxiety as a function of concentration

Variable		χ^2	R ²	B	S.E.	Wald	p	OR	C.I. 95%
CON	Classified Correctly: 59.4%	10.8	0.05	-0.07	0.02	10.16	0.001	0.93	.89-.97
	Constant			1.9	0.6	9.99	0.002	6.66	

χ^2 , Chi-squared; R², Nagelkerke R square; B, Regression Coefficient; S.E, Standard Error; Wald, Wald Test; P, Probability; OR, Odd Ratio; C.I., 95% Confidence Interval; CON, Concentration

Conclusion

The results obtained in this study indicate that the concentration variable has the ability to predict school anxiety, for which it is expected that students with the ability to control their attention processes and voluntarily maintain their cognitive processes on academic tasks, can decrease their levels of school anxiety. The motives for these results could be given because concentration allows for self-control and emotion regulation.^{16,17} Based on the results obtained, it is necessary to design and develop educational programs that can help in the management of situations of school anxiety through attention focusing on the cognitive and behavioral symptoms of anxiety, as stated by Contreras & Córdoba.^{26,27}

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Conflict of interest

The author declares no conflict of interest.

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