Psicothema

Defensive pessimism, self-esteem and achievement goals: A person-centered approach

María del Mar Ferradás Canedo, Carlos Freire Rodríguez, Bibiana Regueiro Fernández, and Antonio Valle Arias
Grupo de Investigación en Psicología Educativa (GIPED) Universidade da Coruña

Abstract

Background: The relationship between defensive pessimism, self-esteem, and achievement goals is a controversial issue. The main contribution of this research is the adoption of a person-centered approach to explore the existence of differentiated profiles of university students, which combine self-esteem and defensive pessimism. In addition, we analyze whether these profiles differ in their achievement goals (learning, performance-approach, performance-avoidance, and work-avoidance). **Method:** 1,028 university students took part in the study. **Results:** Four student profiles were identified: (a) HSE/MDP (high self-esteem and moderate defensive pessimism); (b) LSE/LDP (low self-esteem and low defensive pessimism); (c) HSE/LDP (high self-esteem and low defensive pessimism); and (d) LSE/HDP (low self-esteem and high defensive pessimism). These four profiles differ significantly in their achievement goals. **Conclusions:** The use of defensive pessimism may involve students with either low or high self-esteem, although the two profiles follow differentiated motivational achievement trajectories.

Keywords: Defensive pessimism, self-esteem, achievement goals, person-centered approach, students.

Resumen

Pesimismo defensivo, autoestima y metas de logro: un enfoque centrado en la persona. **Antecedentes:** la relación entre el pesimismo defensivo, la autoestima y las metas de logro constituye una cuestión controvertida. La principal aportación del presente trabajo es la adopción de un enfoque centrado en la persona para explorar la existencia de perfiles diferenciados de estudiantes universitarios que combinen la autoestima y el pesimismo defensivo. Asimismo, se pretende analizar si dichos perfiles se diferencian en sus metas de logro (aprendizaje, aproximación al rendimiento, evitación del rendimiento y evitación del trabajo). **Método:** 1.028 estudiantes universitarios formaron parte del estudio. **Resultados:** se identificaron cuatro perfiles de estudiantes: (a) HSE/MDP (alta autoestima y moderado pesimismo defensivo); (b) LSE/LDP (baja autoestima y bajo pesimismo defensivo); (c) HSE/LDP (alta autoestima y bajo pesimismo defensivo); y (d) LSE/HDP (baja autoestima y alto pesimismo defensivo). Estos cuatro perfiles se diferencian significativamente en las metas de logro que adoptan. **Conclusiones:** la utilización del pesimismo defensivo puede implicar a estudiantes con baja y alta autoestima, aunque ambos perfiles siguen trayectorias motivacionales de logro diferenciadas.

Palabras clave: pesimismo defensivo, autoestima, metas de logro, enfoque centrado en la persona, estudiantes.

More than three decades ago, Norem and Cantor (1986) coined the term *defensive pessimism* to define students who, despite evidence of a clearly successful academic history, consistently manifested a deep negativism towards their future performance. Paradoxically, these students' harmful and unrealistic expectations represent a stimulus that leads them to prepare intensively to prevent their confirmation (Sanna, 2000). This cognitive-behavioral pattern becomes a self-protective strategy, as their low expectations of success mentally prepare them for failure and, consequently, reduce the threat to their self-worth (Martin, Marsh, Williamson, & Debus, 2003). Under such circumstances, anxiety decreases significantly, enabling engagement and effort in tasks (Norem, 2008) and, usually, the achievement of high performance standards (Suárez & Fernández, 2011).

Although there is ample evidence that defensive pessimism is effective in the short term but extremely detrimental for emotional well-being in the long run (Norem & Chang, 2000), one of the issues that aroused more controversy is the role played by self-esteem in the functioning of this strategy.

So far, the few studies that have examined this issue show inconsistencies. Some research argues that the self-esteem of defensive pessimists is far from being high, as it is lower than that of individuals who use strategic optimism (Eronen, Nurmi, & Salmela-Aro, 1998), but not lower than the self-esteem of those who use other self-protective strategies such as self-handicapping (Rodríguez, Cabanach, Valle, Núñez, & González-Pienda, 2004). From this viewpoint, it is postulated that defensive pessimists tend to think negatively, not only regarding the tasks to be addressed, but also with regard to themselves (Norem, 2001). Other work, however, suggest that defensive pessimists' self-esteem fluctuates (Martin, Marsh, & Debus, 2001; Yamawaki, Tschanz, & Feick, 2004), being low in some situations and high in others. Ferradás et al. (2016) have also shown that the self-esteem-defensive pessimism relationship is not linear, such that high self-esteem

would be related to a greater use of defensive pessimism in males, whereas in women, this strategy would be more recurrent when self-esteem is low.

This second position opens the possibility of different profiles of defensive pessimists, such that some of them show high self-esteem and others, low. In fact, Valle, Cabanach, Rodríguez, Núñez, and González-Pienda (2005) suggest the possibility that students with low self-esteem and those who have high self-esteem could both use self-protection strategies. The former, so that a new failure will not erode their already battered self-esteem; on the other hand, students with high self-esteem would need to protect themselves to preserve their high standard of self-esteem.

The previously reviewed studies have analyzed the self-esteem-defensive pessimism relationship by adopting a variable-based approach, which does not determine the possible existence of student profiles that combine these two variables. Under this approach, the present work has as its first aim the adoption of a person-centered approach to identify different profiles that combine defensive pessimism and self-esteem, an unpublished issue to date. Such an approach would provide a more realistic view of students' motivation (Schwinger & Wild, 2012). Drawing on previous research (with a variable-centered approach), we hypothesize the existence of two profiles of defensive pessimistic students: one with low self-esteem and the other with high self-esteem.

To test the validity of the identified profiles, as the second goal, we determine whether the groups found differ in their achievement goals. The few existing precedents essentially link defensive pessimism to performance goals (Elliot & Church, 2003; Rodríguez et al., 2004; Yamawaki et al., 2004). However, while some works (Rodríguez et al., 2004) argue that defensive pessimism is related to the desire to avoid negative social judgments (performance-avoidance goals), others (Elliot & Church, 2003) indicate that in this strategy, there is also an underlying interest to exhibit competition against others (performance-approach goals).

It is also unclear whether defensive pessimism is positively related to the desire to achieve new knowledge (learning goals). In this sense, several studies have shown a low correlation between this type of goals and defensive pessimism (Elliot & Church, 2003; Valle et al., 2007; Yamawaki et al., 2004). However, Martin et al. (2003) through qualitative interviews, observed some interest in learning in defensive pessimistic students, although it seems that it was more frequently used as a means to perform. In a similar vein, Ferradás, Freire, Núñez, Piñeiro, and Rosário (2017) found greater use of defensive pessimism in students who combine learning with the two performance tendencies (approach and avoidance).

Whereas some works (e.g., Gebka, 2014; Phan, 2010) relate self-esteem positively with learning and performance-approach goals and negatively to performance-avoidance goals, we expect that the profile with high defensive pessimism and high self-esteem will use learning and performance goals to a greater extent. On the contrary, we expect that the profile with high defensive pessimism and low self-esteem will show higher levels of performance-avoidance goals.

Method

Participants

The Universidade da Coruña (Spain) has 17,227 students, of whom 1087 (6.3%) were selected through incidental sampling. Fifty-six cases were eliminated due to missing data. Also, using Mahalanobis' distance method (Hair, Anderson, Tatham, & Black, 1995), we identified three cases presenting outliers, so they were also eliminated. Thus, the final sample was made up of 1,028 students ($M_{age} = 21.36$, $SD_{age} = 3.81$). Of the participants, 86.3% were women. With respect to their qualification, 69.9% of the participants studied Educational Sciences, and 30.1%, Health Sciences.

Instruments

Defensive pessimism

We used in the Spanish version of the Defensive Pessimism Questionnaire (Norem, 2002). The 12-item instrument (e.g., "Considering what can go wrong helps me to prepare") has shown good reliability ($\alpha = .89$). Students' responses were rated on a Likert scale (1 = *never* to 5 = *always*).

Self-esteem

We used the Spanish adaptation of Martín-Albo, Núñez, Navarro, and Grijalvo (2007) of the Rosenberg Self-esteem Scale (Rosenberg, 1965). The 10-item instrument (e.g., "In general, I'm satisfied with myself") has shown adequate reliability ($\alpha = .88$) in our study. Responses were rated on a Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

Achievement goals

Using the Spanish adaptation (Jover, Navas, & Holgado, 2014) of the Goal Orientation Scale (Skaalvik, 1997), we assessed four types of achievement goals: *learning goals* (6 items; e.g., "It is important for me to learn new things in class"), *performance-approach goals* (5 items; e.g., "I try to get better grades than others"), *performance-avoidance goals* (6 items; e.g., "When I answer incorrectly in class, what worries me most is what my classmates think of me"), and *work-avoidance goals* (4 items; e.g., "In class, I prefer to do as little as possible"). The internal consistency of the factors ranged between $\alpha = .76$ *(work avoidance)* and $\alpha = .85$ (performance approach). The participants' responses were rated on a Likert scale (1 = *never* to 5 = *always*).

Procedure

After obtaining permission from the relevant university departments, data were gathered in the classrooms where the students receive their university training, within the academic schedule. The participants were informed about the goals of the study, the voluntary nature of their participation, and the anonymity and confidentiality in the processing of the information obtained. The questionnaires were applied by trained personnel in a single session without time limit. In order to reduce the effect of the order of presentation of the instruments, a full counterbalance was performed. For this purpose, the questionnaires were administered randomly according to six combinations, each of which contained the three scales used in a different position.

Data analysis

The profiles of defensive pessimism and self-esteem were identified by a two-step cluster analysis (Everitt, Landau, Leese, &

Stahl, 2011). In a first phase, hierarchical analysis was performed using the Ward method and the intragroup bonding method. The Ward method uses an *F* value to maximize the significance of the differences between clusters, making it the method with the greatest statistical power (Milligan & Hirtle, 2003). To check the stability of the solutions obtained, we performed a second hierarchical analysis, using the intragroup bonding method (Hair & Black, 2002). From the interpretation of the resulting dendrograms of these two methods, and in order to refine the allocation of subjects to each group and obtain the final group solution, in a second phase, we performed a non-hierarchical analysis (*k*-means). Finally, we conducted two separate MANOVAs to examine both the robustness of the identified profiles and the differences between the profiles in terms of achievement goals. We used the Games-Howell tests as post-hoc contrast tests. The magnitude of the effect was determined by Cohen's *d* statistic and partial eta squared. All the analyses were performed with the SPSS 24 statistical software.

Results

Preliminary analyses

Table 1 presents the descriptive statistics and correlations between the variables of the study. The skewness and kurtosis rates indicated that all the variables met the criteria of normality (see Finney & DiStefano, 2006). The correlation matrix also showed that all of the correlations were statistically significant. Bartlett's sphericity test results also indicated that the variables were sufficiently intercorrelated, $\chi^2(15) = 2203.53, p < .001$.

Identification of the profiles

The results of hierarchical cluster analysis (Ward's method and intragroup bonding method) showed two dendrograms with a similar structure when three and four groups were considered. Taking this information into account, as well as the change in the cluster coefficient, we decided that the best solution was to divide the sample into four groups. With reference to these four clusters, in a second phase, we performed an iterative procedure

of *k*-means. After this analysis, 68 cases (6.61%) were reassigned to other groups, leading to better differentiated and more uniform-sized segments.

The solution contained a first group (Cluster 1) of 149 students (14.49%) characterized by high self-esteem and a moderate level of defensive pessimism (HSE/MDP). A second group (Cluster 2) of 147 students (14.3%) with low self-esteem and low defensive pessimism (LSE/LDP). The third profile (Cluster 3), comprising 522 students (50.78%), was characterized by high self-esteem and low defensive pessimism (HSE/LDP). Finally, Cluster 4 was made up of 210 students (20.43%) with low self-esteem and high defensive pessimism (LSE/HDP). Figure 1 shows a graphic representation of these four profiles.

To analyze the robustness of the identified profiles, we performed a MANOVA, using defensive pessimism and self-esteem as dependent variables. The multivariate effect of the cluster was statistically significant, $\lambda_{Wilks} = .027, F(6, 2046) = 1741.43, p < .001, \eta_p^2 = .836$. Table 2 shows the means and standard deviations (raw and standardized scores) of the four profiles in the two classification variables, as well as the univariate tests for each variable.

Intergroup differences in Achievement Goals

Table 3 shows the means and standard deviations of each profile in the four achievement goals, as well as the univariate tests for each goal. Also included are the results of the post hoc contrasts (Games-Howell).

The MANOVA yielded statistically significant differences between the profiles of all four achievement goals, $\lambda_{Wilks} = .345$,
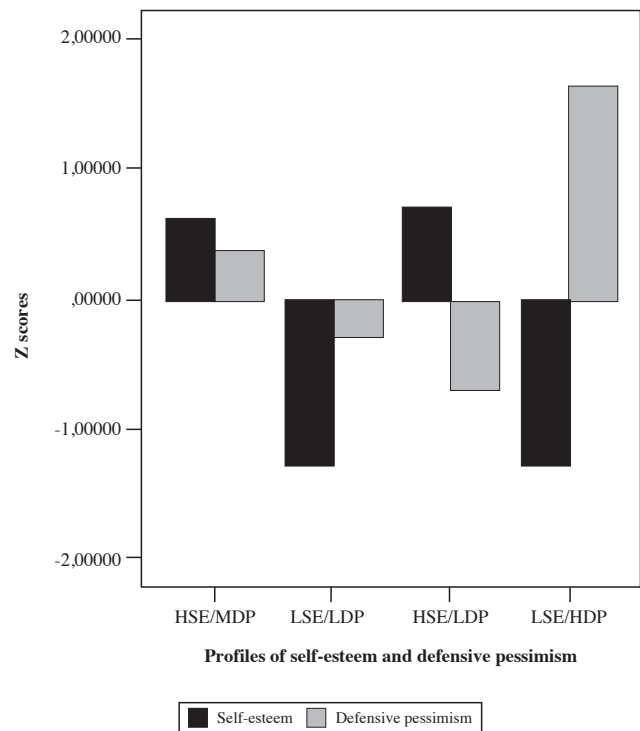
	1	2	3	4	5	6
1. DEF_PES	—					
2. SE	-.59***	—				
3. WAG	-.49***	.54***	—			
4. LG	.28***	-.12***	-.52***	—		
5. PApG	.43***	-.46***	-.10***	-.18***	—	
6. PAvG	.11***	-.22***	.15***	-.37***	.56***	—
M	2.35	3.41	2.70	3.24	3.30	3.24
SD	0.87	0.52	0.99	1.00	0.93	0.87
Skewness	0.83	-0.39	0.18	-0.45	-0.51	-0.60
Kurtosis	-0.49	-1.41	-1.00	-0.65	-0.71	0.05

Table 1
Descriptive statistics and correlation matrix of the variables of the study

Note: PES_DEF = defensive pessimism; SE = self-esteem; WAG= Work avoidance goals; LG = learning goals; PApG = Performance-approach goals; PAvG = performance-avoidance goals
***p < .001

Figure 1. Graphic representation of the profiles identified in the cluster analysis
Note: HSE/MDP = high self-esteem/moderate defensive pessimism; LSE/LDP = low self-esteem/low defensive pessimism; HSE/LDP = high self-esteem/low defensive pessimism; LSE/HDP = low self-esteem/high defensive pessimism

$F(12, 2701.60) = 111.42$, $p < .001$, $\eta_p^2 = .299$. The effect size was medium in the case of performance-avoidance goals, and large in the other three goals.

Considering the post-hoc contrasts, in work-avoidance goals, the HSE/LDP group obtained significantly higher scores than the other groups, although the differences were only large compared to LSE/HDP ($d = 1.74$). In fact, the differences between the LSE/HDP group and the HSE/MDP and LSE/LDP groups were also large ($d = 1.41$ and $d = 1.09$, respectively). In learning goals, the LSE/HDP group obtained significantly higher scores, with differences with the other groups ranging between $d = 0.62$ (HSE/MDP) and $d = 1.56$ (LSE/LDP). In performance-avoidance goals, the LSE/LDP group obtained significantly higher scores, observing moderate ($d = 0.51$ with group LSE/HDP) to large differences ($d = 0.97$ with group HSE/LDP; and $d = 1.06$ with group HSE/MDP) with the other groups. As for performance-approach goals, there was a significantly higher score in both groups with low self-esteem (LSE/HDP and LSE/LDP), with large differences with the other two groups (between $d = 1.23$ and $d = 1.80$).

Discussion

The main contribution of this work is the adoption of a person-centered approach to analyze the role of self-esteem in the functioning of defensive pessimism. This approach, unpublished to date, has allowed us to identify two profiles of defensive pessimistic university students: one with low self-esteem and the other, more moderate in the use of the strategy, which showed high self-esteem. We also identified two other profiles of students who do not use defensive pessimism, one with low self-esteem and the other with high self-esteem. These results reinforce those recently obtained by Ferradás et al. (2016), indicating that the need to protect oneself through defensive pessimism may involve students who like themselves and students who do not.

Considering that defensive pessimists generally fit the profile of a "good student" (García, 1995)—efficient use of learning strategies (Suárez, 2014), high levels of self-regulation (Elliot & Church, 2003), good performance (Suárez & Fernández, 2011)—it may be surprising that some defensive pessimists have low self-esteem. A possible explanation would be that, among good students, some of them are overly self-critical, and the fear of failing predisposes them to protect themselves through defensive pessimism (Pullman & Allik, 2008). Another plausible argument would incur in the trend of defensive pessimists to think negatively, both about the tasks they must face and about themselves (Norem, 2001). These negative self-appraisals would acquire a strategic value (Martin et al., 2003), helping defensive pessimists to "be on guard" to avoid an unfavorable outcome that would compromise their personal worth.

The fact that, as our findings indicate, some students with high self-esteem use defensive pessimism can also be disconcerting. As opposed to the students who match the high self-esteem and low defensive pessimism profile, these students may value themselves, but these feelings would be characterized by their inconsistency. Therefore, if it is assumed that defensive pessimism is a strategy that is eminently "activated" in ego-threatening situations (Thompson & le Fevre, 1999), these students, who are insecure about their personal worth, would find in defensive pessimism a

Table 2
Descriptive statistics and univariate tests of the four profiles in self-esteem and defensive pessimism

		HSE/MDP n = 149 14.49%		LSE/LDP n = 147 14.3%		HSE/LDP n = 522 50.78%		LSE/HDP n = 210 20.43%		$F_{(3,1024)}$	η_p^2
		M	SD	M	SD	M	SD	M	SD		
Self-esteem	Raw score	3.73	0.20	2.75	0.10	3.78	0.19	2.74	0.11	2861.51***	.893
	Z-score	0.62	0.39	-1.29	0.20	0.71	0.37	-1.29	0.21		
Defensive pessimism	Raw score	2.69	0.37	2.09	0.53	1.74	0.27	3.78	0.36	1746.19***	.836
	Z-score	0.39	0.43	-0.30	0.60	-0.69	0.31	1.64	0.41		

Note: HSE/MDP = high self-esteem/moderate defensive pessimism; LSE/LDP = low self-esteem/low defensive pessimism; HSE/LDP = high self-esteem/low defensive pessimism; LSE/HDP = low self-esteem/high defensive pessimism.
***$p < .001$

Table 3
Descriptive statistics and univariate tests of the four profiles in each achievement goal

	HSE/MDP[a]		LSE/LDP[b]		HSE/LDP[c]		LSE/HDP[d]		$F_{(3,1024)}$	η_p^2	Post hoc(n.s.)
	M	SD	M	SD	M	SD	M	SD			
WAG	2.84	0.72	2.57	1.14	3.11	0.79	1.67	0.71	153.80	.311***	a-b
LG	3.29	0.78	2.44	1.19	3.21	0.84	3.86	0.95	70.94	.172***	a-c
PApG	2.99	0.93	3.86	0.67	3.06	0.93	3.44	0.45	45.30	.111***	a-c
PAvG	2.81	0.88	3.86	0.60	2.93	0.87	4.17	0.33	182.66	.349***	a-c

Note: HSE/MDP = high self-esteem/moderate defensive pessimism; LSE/LDP = low self-esteem/low defensive pessimism; HSE/LDP = high self-esteem/low defensive pessimism; LSE/HDP = low self-esteem/high defensive pessimism; WAG = work avoidance goals; LG = learning goals; PApG = performance-approach goals; PAvG = performance-avoidance goals
***$p < .001$; n.s. = nonsignificant

strategy to preserve their high, but weak, self-esteem when they feel threatened by a potential failure. This explanation would be consistent with the results that link defensive pessimism with unstable self-esteem (Martin et al., 2001; Yamawaki et al., 2004). However, given that the measurement instrument of self-esteem used in our study does not evaluate its degree of stability, the explanation remains a mere hypotheses that should be confirmed in future work.

In addition, our results indicate that the two profiles of defensive pessimists (HSE/MDP and LSE/HDP) differ partially in their achievement motivations. Thus, in comparison with the remaining identified profiles, the students of the LSE/HDP group show the highest levels of learning and performance-approach goals. On another hand, they also show fairly high levels (only exceeded by the LSE/LDP group) of performance-avoidance goals, as well as the lowest levels (differing broadly from the other groups) of work-avoidance goals. This finding confirms the description in other studies (e.g., Ferradás et al., 2017; Martin & Marsh, 2003) of the defensive pessimist as a student who is cognitively committed to the fear of failure but behaviorally focused on success. In this sense, as suggested by other works (Norem & Cantor, 1986; Suárez, 2014), it seems that, in defensive pessimistic students (in our case, in those with low self-esteem), dedication and effort shape the path to overcome their fears.

Defensive pessimists with high self-esteem seem to develop a different motivational achievement trajectory. These students show moderately high levels of learning goals (although lower than students of the LSE/HDP group), but also a moderately high desire (only exceeded by the HSE/LDP group) to avoid academic work. However, in comparison with the rest of the profiles identified, students of the HSE/MDP group do not seem particularly interested in comparing themselves with their peers (i.e., performance-approach and performance-avoidance goals). According to these results, we are faced with an atypical profile of defensive pessimists with regard to prior research linking this strategy to performance orientation (Elliot & Church, 2003;

Yamawaki et al., 2004). However, given that the two groups with high self-esteem (HSE/MDP and HSE/LDP) developed almost identical achievement motivations, it is possible that the moderate levels of defensive pessimism of the HSE/MDP group are indicative of a very occasional use of this self-protective strategy (only in certain tasks or markedly threatening situations). From this consideration, the scarce use of defensive pessimism would not influence the achievement goals of the students who have this profile. Future work should specifically analyze this assumption.

Altogether, the results of this study contribute substantially to the study of the relationship of defensive pessimism-self-esteem, identifying two profiles of defensive pessimists who are differentiated in their self-esteem. In addition, our findings indicate that these two profiles follow different motivational achievement trajectories. These contributions have important psychoeducational implications. Assuming that the emotions, cognitions, and motivations of the students constitute an integrated whole (Aritzeta et al., 2016), it is necessary to identify the factors that contribute to reducing the high levels of anxiety experienced by the defensive pessimists. Among them are control beliefs (Valle et al., 2015).

The limitations of the study should lead us to carefully consider these contributions. Firstly, the cross-sectional nature of the research carried out does not allow us to establish causal relationships between the variables. This issue must be addressed in future work through more appropriate designs. Secondly, the sampling procedure (incidental) limits the internal and external validity of the results. Therefore, our findings should be confirmed in future studies using more rigorous sampling techniques. Also, the fact of only including students of Educational Sciences and Health Sciences, together with the remarkable preponderance of women in these degrees, hinders the generalizability of the results. As a result, future lines of research could focus on gender differences in the relationship between self-esteem and defensive pessimism profiles and achievement goals. Finally, our study has only considered academic achievement goals. Successive works should also incorporate social motivations.

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