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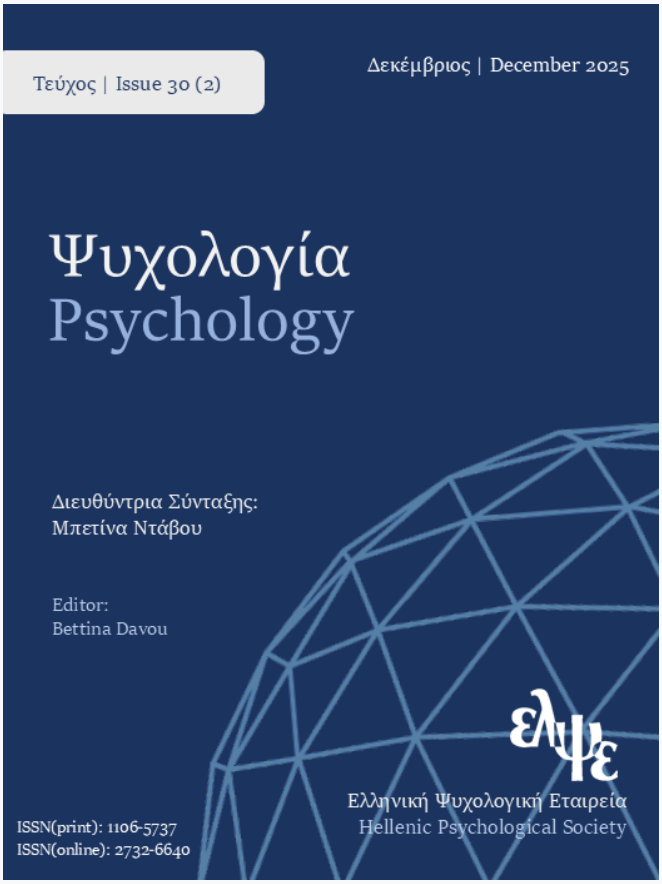

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Exploring the relation between self-efficacy and school bullying: The moderating role of personal factors

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KEYWORDS

Bullying/Victimization
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ABSTRACT

Bullying/victimization remains a significant issue within school environments, impacting millions of students worldwide and leading to enduring consequences on personal well-being and academic performance. This study sought to examine the moderating effects of demographic factors (gender, age, transfer status, Body Mass Index, and ethnicity) on the relationship between self-efficacy dimensions and both bullying and victimization forms. The sample comprised 2,427 Greek students (M = 12.92, SD = 1.46), including 1,216 females and 1,211 males, spanning from the 5th and 6th grades of primary school to the 1st, 2nd, and 3rd grades of secondary school. multivariate analyses of variance, univariate analyses of variance, correlation analyses and hierarchical regression analyses were conducted to examine the relationships and group differences across all dependent variables. Grounded in both Bandura's Social-Cognitive Theory and Social Identity Theory, the findings revealed that gender, age, transfer status, body mass index, and ethnicity may moderate the association between self-efficacy and bullying/victimization involvement. The implications of these findings are discussed in relation to the development of prevention and intervention strategies within school curricula aimed at addressing the phenomenon.

More than three decades following Olweus's pioneering work in 1993, and despite the extensive body of research, school bullying remains a pressing concern within the academic community. Defined as a subset of aggressive actions from an individual or a group of people, against another (Olweus, 1993), bullying seems to strongly resist prevention/intervention programs (Evans et al., 2014). In bullying context, attacks are manifested unprovoked and repeatedly by a perpetrator with more physical, mental or social power against a victim who cannot effectively defend themselves. Additionally, these actions are driven by the intention of the perpetrator to purposely harm the victim (Volk et al., 2014).

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Bullying can take various forms. However, in the school context, the most common categorization for traditional bullying includes *physical*, *verbal*, and *relational* forms. The flip side of the coin, victimization, also follows the same categorization. In addition, relevant literature has pinpointed that a surprisingly considerable "casting" of individuals may play a role in an act of bullying/victimization. Among these roles, "bullies" (individuals that act aggressively against others), "victims" (people that overwhelmed by the aggressive actions) and "bully-victims" (those who are both perpetrators and targets of the aggressive actions) are the most noticeable (Salmivalli, 1999).

Children who participate in this phenomenon, are confronted with significant risks, encompassing psychological, academic, and social challenges (Vanderbilt & Augustyn, 2010). For perpetrators, these consequences span from inadequate social adjustment and academic underperformance to involvement in delinquent activities and criminal behavior (Stuart & Jose, 2014). Moreover, victimization is associated with increased experiences of loneliness, depression, anxiety, avoidance of school, engagement in bullying perpetration, and even suicide (Faris & Felmlee, 2014). Importantly, these repercussions extend beyond the school setting, often persisting into adulthood and significantly influencing individuals' lives for years to come (Adams & Lawrence, 2011).

Numerous studies have sought to elucidate the underlying mechanisms related to bullying/victimization involvement. In this regard, Social-Cognitive Theory has emerged as a robust theoretical framework, with self-efficacy identified as a key psychological construct influencing how individuals navigate and react to such experiences (Wang et al., 2018). According to Bandura (1997), an individual's behavior is regulated by a combination of personality traits, behaviors, and environmental factors. A key component of this theory is self-efficacy, which reflects the inner system that forms the foundation of human motivation, well-being, and personal achievements. Self-efficacy encompasses three dimensions: *academic*, reflecting an individual's belief in their ability to succeed in academic endeavors; *self-regulatory*, pertaining to an individual's capacity to resist peer pressure and avoid engaging in delinquent behaviors; and *social*, describing an individual's ability to develop and maintain meaningful social connections (Klassen, 2010).

While self-efficacy reflects individuals' perceptions of their own abilities, opportunities do not always translate into successful outcomes. According to Self-Discrepancy Theory (Higgins, 1995), adolescents' failure to achieve their goals in important domains of functioning can undermine their self-evaluation. In some cases, adolescents may respond to these discrepancies by engaging in risky or aggressive behaviors, such as bullying perpetration, potentially as a way to counteract corrective adjustments or enhance their self-efficacy (Pajares & Kranzler, 1995).

Self-efficacy calibrates how individuals interpret and respond to challenges, shaping whether they perceive them as opportunities or threats (Bandura, 1997). In the context of bullying/victimization, individuals with elevated self-efficacy are more likely to respond assertively and are less likely to become involved as perpetrators or victims (Allison & Bussey, 2016). However, research suggests that the impact of self-efficacy may vary depending on its specific dimension. For instance, academic and social self-efficacy have been negatively correlated with both bullying and victimization (Erath et al., 2010; Galand & Hospel, 2013). Kokkinos and Kipritsi (2012) found that victims reported low scores across all dimensions of self-efficacy, and that low academic self-efficacy was a predictor of bullying perpetration. Similarly, a recent meta-analysis by Liu et al. (2023) confirmed strong negative

associations between self-efficacy and bullying involvement, particularly with academic self-efficacy. Additionally, recent studies have highlighted a strong relationship between self-regulatory efficacy and bullying/victimization involvement (e.g., Williams et al., 2024). This pattern may reflect a vicious cycle in which low academic, self-regulatory, and social self-efficacy increases vulnerability, which in turn further undermines a student's sense of competence (Ladd et al., 2017).

Although self-efficacy is generally regarded as a protective factor against bullying and victimization (e.g., Kokkinos et al., 2015), some studies have yielded divergent findings. For example, several studies found no significant association between self-efficacy and victimization (e.g., Fredstrom et al., 2011; Llorca et al., 2017), while others reported that certain bullies demonstrate high levels of self-efficacy (e.g., DePaolis & Williford, 2015). These inconsistencies highlight the need for future research to further disentangle the distinct contributions of academic, social, and self-regulatory self-efficacy, and the contexts in which self-efficacy may fail to protect against aggressive behaviors.

Self-efficacy is contingent upon a complex interplay of demographic, social, and environmental factors (Bandura, 1997). Demographic characteristics often categorize students into distinct social groups, with cultural norms shaping their roles and interactions. According to Social Identity Theory (Hogg, 2016), individuals derive a sense of self-worth and belonging from identification with social groups such as gender, or ethnicity. This group membership influences intergroup behaviors, often resulting in in-group favoritism and out-group discrimination. Within school settings, students who fit the dominant or "in-group" profile—such as males, Greek students, those with a healthy weight, and non-transferred students—may be more likely to engage in bullying as a means of asserting or maintaining social hierarchies. Conversely, those perceived as belonging to marginalized or "out-groups", including females, overweight and obese students, non-Greeks, or newly transferred students, are often more susceptible to victimization due to social exclusion and lower social status. Bullying thus serves as a mechanism to reinforce in-group dominance and exclude out-group members. Empirical research supports these associations, with demographic factors such as age, gender, body mass index (BMI), and ethnicity have been shown to be significantly related to bullying and victimization (e.g., Antoniadou et al., 2016; Kokkinos, 2013), and some studies indicating these factors may moderate the relationship between self-efficacy and bullying/victimization (Liu et al., 2023).

Gender is a widely studied factor in bullying/victimization, with males typically showing higher rates of total bullying perpetration (Veenstra et al., 2005), especially *physical* and *verbal* forms (Pepler et al., 2008). Females, on the other hand, are more likely to engage in *relational* bullying (Fujikawa et al., 2021). Similarly, males tend to experience more *physical* and *verbal* victimization, while females face more *relational* victimization (Voulgaridou & Kokkinos, 2015; Zych et al., 2021). However, total victimization rates do not consistently differ by gender (Craig et al., 2009), suggesting comparable prevalence across genders. Research on gender differences in the relationship between bullying/victimization and self-efficacy shows mixed results. Some studies report gender-related effects (e.g., Andreou & Metallidou, 2004; Saripanidis et al., 2025), while others do not (e.g., Liu et al., 2023; Trompeter et al., 2017). These inconsistencies may reflect differences in how self-efficacy is measured, making direct comparisons difficult but offering useful insights into the gendered dynamics of bullying and self-efficacy.

Moreover, age may moderate how bullying, victimization, and self-efficacy interact, as both their prevalence and their associations vary developmentally. While bullying typically peaks during the transition to secondary school and declines thereafter (Vaillancourt et al., 2023), *verbal* and *relational* bullying may persist or increase in high school (Chester et al., 2017; Nansel et al., 2001). Self-efficacy often declines in adolescence (Caprara et al., 2000), though some studies report stability depending on context and domain (Trouillet et al., 2009; Farmer et al., 2022). The moderating role of age in the bullying–self-efficacy link remains unclear, as some findings suggest a stronger relationship in younger children (Ferreira et al., 2020; Thornberg et al., 2017), while others, such as Liu et al. (2023), find no age effect. This inconsistency highlights the need for further research on developmental patterns.

The transition from an educational stage to another has drawn significant scientific attention. However, another transition, this among different school environments is often neglected. In this direction, Song et al. (2020) who examined bullying/victimization among students that have changed school environment, found that transferring between schools constitutes a significant risk factor for school victimization. Moreover, Nowland et al. (2020) examined 156 students before and after a school change, uncovering a robust link between school transfer and self-efficacy. Specifically, self-efficacy was found to moderate the relationship between school transfer and social threat sensitivity, aiding children in coping with concerns and anxieties associated with changing schools. Thus, the act of transferring schools could wield a significant moderating effect on the relationship between bullying/victimization and self-efficacy.

Several studies have identified a connection between BMI and bullying/victimization, particularly noting that overweight and obese students may engage more in the phenomenon, potentially as a result of their larger size (Griffiths et al., 2005; Jansen et al., 2014). However, the moderating role of specific attributes, such as BMI, is often overlooked, despite being considered significant risk factors for victimization (Liu et al., 2023). A recent, relevant study, conducted by Ahadzadeh et al. (2018) reported no significant BMI effect between victimization and body-esteem. To the best of our knowledge, no study has directly examined the moderating role of BMI on the relationship between bullying/victimization and self-efficacy.

Regarding ethnicity, the majority of studies converge on the finding that students from minority ethnic groups are at higher risk of involvement in the phenomenon, both as perpetrators (e.g., Espelage et al., 2018) and as victims (e.g., Kisfalusi et al., 2020). However, the limited number of studies examining the moderating role of ethnicity have produced mixed results. For instance, Lin et al. (2020), in their study of 5,912 Chinese and 1,935 German university students, found that bullying was negatively associated with self-efficacy among the Chinese group, whereas it was positively associated with self-efficacy among the German group. Contrarily, Liu et al. (2023), in their meta-analysis, did not identify significant differences in the relationship between bullying/victimization and self-efficacy, possibly due to the imbalance in the cultural contexts examined.

The Present Study

The present study aims to extend prior research by examining how demographic factors moderate the relationship between self-efficacy dimensions and bullying/victimization forms. Drawing on Social

Identity Theory, we expect that students aligned with the dominant in-group will show higher bullying perpetration, while out-group members will experience more victimization.

Existing literature has linked factors such as gender, age, transfer status, BMI, and ethnicity to bullying/victimization involvement. However, most studies have focused primarily on the role of these factors in the moral disengagement – bullying/victimization relationship (e.g., Travlos et al., 2021), largely overlooking the pivotal role of self-efficacy in shaping such behaviors. Moreover, while some variables have shown varying effects on the self-efficacy–bullying/victimization relationship, findings remain inconclusive or absent for factors such as transfer status, and BMI.

Based on prior research and theory, we hypothesize that the effect of self-efficacy dimensions on bullying will be stronger among males, older students, non-transferred students, and those with an underweight or healthy BMI. Conversely, the effect of self-efficacy dimensions on victimization is expected to be stronger among females, younger students, transferred students, and those with an overweight or obese BMI. This study seeks to clarify mixed findings by examining the moderating roles of these factors, contributing to more nuanced understandings and targeted intervention strategies.

Method

Participants

The sample consisted of 2,427 students attending 32 primary and 11 secondary public schools in Peloponnese, Greece. Participants ranged from 10 to 15 years (M = 12.92, SD = 1.46). Sample was selected using a stratified random sampling method to ensure representation across gender and grade levels. Data collection was facilitated by school administrators and teachers, and informed parental consent was obtained for all participants. Participants required approximately 40 to 45 minutes to complete the questionnaire. All questionnaires were completed and returned, resulting in a dataset with no missing values.

Measures

Demographic characteristics. The demographic characteristics were collected via six general questions. The first question was measuring “gender”, categorizing students into two groups (males/females). The second question was measuring “age”.

Next two questions were measuring “height” and “weight”, respectively. Data collected, alongside with students’ age, were utilized, in order to calculate students’ BMI score. The calculation has been conducted based in Quetelet equation (Eknoyan, 2008), while each individuals’ BMI score then got compared with CDC growth charts (Kuczmarski et al., 2002). Based on the result of this comparison, students were categorized either as underweight, healthy weight, overweight or obese. Regarding BMI, research has shown that it can be measured with reasonable accuracy using self-reported height and weight, as self-reported and measured BMI have been found to highly correlated (r = 0.95) (Sherry et al., 2007).

Fifth question aimed to assess ethnicity. Students were categorized into two groups (Greek/non-Greek) based on whether their parents were both native or not. The last question measured "transfer

status," which referred to whether a student had ever changed school environments. Responses were binary coded.

Bullying/Victimization. Students' bullying/victimization were measured via the 16-item revised Olweus Bully/Victim Questionnaire (OBVQ; Olweus, 1996). The questionnaire contains two 8-item scales, one for measuring bullying (e.g., "I threatened or forced him or her to do things he or she didn't want to do") and one for measuring victimization (e.g., "I was hit, kicked, pushed, shoved around, or locked indoors"). Each scale includes three factors (*physical*, *verbal*, and *relational*). OBVQ is translated and adapted into Greek (Kyriakides et al., 2006) and has been used in various studies for measuring bullying and victimization among Greek students. Scales evaluate the three forms of the phenomenon, over the last 2 to 3 months. A 5-point Likert type scale was used for evaluating the answers, scaling from "1 = *never*", "2 = *1 to 2 times*", "3 = *2 to 3 times*", "4 = *1 in a week*", and "5 = *many times in 1 week*". According to Solberg and Olweus (2003) in order to characterize a student as bully, bully-victim or victim, the positive answer's frequency should be at least 2-3 times over the last 2 to 3 months. Based on this threshold, students who reported bullying others, but not being victimized, were categorized as bullies. Those who reported being victimized, but not bullying others, were categorized as victims. Students who met the criteria for both bullying and victimization were classified as bully-victims. All remaining students were categorized as uninvolved. *Cronbach's alpha* was $\alpha = .91$ for bullying subscale, and $\alpha = .92$ for victimization subscale.

Self-Efficacy. Students' self-efficacy was measured via the Greek translation of the Children's Perceived Self-Efficacy Scale (Bandura et al., 2001). The scale contains 37 items and evaluates three specific dimensions of self-efficacy. Academic self-efficacy i.e., students' ability to handle their learning process and achieve their academic goals (e.g., "How well can you learn mathematics?"). Social self-efficacy i.e., students' ability to handle relationships with peers (e.g., "How well can you participate in class discussions?"). Self-regulatory efficacy i.e., students' ability to resist peer pressure (e.g., "How well can you stop yourself from skipping school when you feel bored or upset?"). Students' answers were given on 5-point Likert-type scale from 1 (not at all) to 5 (very well). Cronbach's alpha was computed to $\alpha = .87$, $\alpha = .79$, and $\alpha = .74$, respectively.

Procedure and data analysis

After obtaining approval from the Regional Directorate of Education of Peloponnese (1872/23-03-2023), parental consent was secured, and arrangements were made with school principals. Before participating, researcher informed the students that completing the questionnaire is anonymously, their data will be kept confidential and they can withdraw from the procedure anytime they feel uncomfortable. Questionnaires' completion took place in students' classroom and under the supervision of their teachers.

Various statistical analyses were conducted, including descriptive statistics, one-way multivariate analyses of variance (MANOVAs), and univariate analyses of variance (ANOVAs). The primary aim of the MANOVAs was to examine whether students' self-reported experiences of bullying, victimization, and self-efficacy differed based on independent variables (e.g., transfer status) (Armstrong, 2014). MANOVAs offer several advantages over conducting multiple ANOVAs separately, such as reducing the

risk of Type I errors, increasing power to detect meaningful effects, and revealing group differences that may be missed by individual ANOVAs (Kokkinos et al., 2015).

In addition, correlation and moderated hierarchical regression analyses were performed to examine the moderating effects of gender, age, BMI, ethnicity, and transfer status on the relationship between self-efficacy dimensions and bullying/victimization forms. Following established guidelines in the literature, self-efficacy dimensions, and demographic characteristics were treated as predictor variables. Centered variables and interaction terms (e.g., Academic Self-Efficacy × Gender) were created to reduce multicollinearity and facilitate interpretation of interaction effects (Hayes, 2012). A moderation effect was considered present when a statistically significant increase in explained variance was observed upon inclusion of the interaction term (Baron & Kenny, 1986).

In both the one-way MANOVAs and hierarchical regression analyses, effect sizes were interpreted based on Cohen's (1988) guidelines, which classify *partial* η^2 (values of .01, .06, and .14 as indicative of small, medium, and large effects, respectively) and standardized beta coefficients (β) (values of .10, .30, and .50 as indicative of small, medium, and large effects, respectively). All analyses were conducted using IBM SPSS Statistics 29 (IBM Corp., Armonk, NY, USA), with a significance level set at $\alpha = .05$.

Prior to conducting the MANOVAs and ANOVAs, the assumptions of normality, homogeneity of variances, and independence were examined. Normality was assessed using the Kolmogorov–Smirnov (K–S) test, as the sample size exceeded 50 (Gall et al., 2007), along with visual inspections of Q–Q plots and histograms. Results indicated that the distributions did not significantly deviate from normality ($p > .05$). Homogeneity of variances was tested using Levene's test, with non-significant results ($p > .05$) confirming this assumption. Independence of observations was ensured by the study's sampling design.

For the multiple regression analyses, the assumptions of normality, multicollinearity, and homoscedasticity were verified, following Osborne and Waters (2002). Normality of residuals was assessed via the Kolmogorov–Smirnov test and P–P plots, indicating no significant deviations from normality. Multicollinearity was evaluated using Variance Inflation Factor (VIF) and tolerance values; VIF values were below 5 and tolerance values exceeded .20, suggesting no multicollinearity issues. Homoscedasticity was confirmed through visual inspection of residual scatterplots, which demonstrated a random and uniform spread of residuals across predicted values.

Because all primary MANOVA, ANOVA, and regression models were planned based on theory and prior findings, no correction for multiple comparisons was applied to the main effects (Streiner & Norman, 2011). However, for the BMI ANOVA, which included four categories (underweight, normal weight, overweight, obese), SPSS post hoc pairwise comparisons were performed using the Bonferroni adjustment to control the family-wise Type I error rate. The family of comparisons was defined as all six possible pairwise contrasts among the four BMI groups for a single dependent variable, and adjusted *p*-values returned by SPSS were used to determine statistical significance. Given that *p*-values are influenced by sample size, interpretation also considered effect sizes (*partial* η^2 for MANOVA/ANOVA and standardized β for regression) following Cohen's (1988) guidelines, to assess the magnitude and practical importance of observed effects.

Results

Descriptive statistics

Bullying/victimization was found to be a common phenomenon in modern Greek schools, affecting 61.5% of the participants (n = 1,493). Specifically, 33.0% of students reported being victims, 7.6% perpetrators, 20.8% bully-victims, while 38.5% remained uninvolved.

Differences between self-efficacy, bullying/victimization and demographics

Three one-way MANOVAs were conducted for each demographic variable (gender, transfer status, BMI, and ethnicity) to examine their effects on bullying perpetration, victimization, and self-efficacy. This resulted in twelve analyses in total. All multivariate tests were statistically significant (see Table 1), although effect sizes ranged from very small to small.

Follow-up univariate ANOVAs (Table 1) and Bonferroni post hoc comparisons (Supplementary Table) revealed consistent demographic patterns. More analytically, as compared to females, males reported significantly higher levels of all bullying forms and *physical* victimization, whereas females tended to score significantly higher on *relational* victimization and demonstrated greater self-regulatory and academic self-efficacy (p < .05). Transferred students reported significant higher *physical* and *verbal* bullying and greater victimization across all forms, while non-transferred students reported higher scores on all self-efficacy dimensions (p < .05). Overweight and obese students exhibited higher levels of *physical* and *verbal* bullying, as well as greater victimization, compared to peers with a healthy BMI (p < .05). Obese students also reported significantly higher engagement in *relational* bullying than their normal-weight peers and experienced greater *relational* victimization compared to underweight students (p < .05). In contrast, normal-weight students scored significantly higher than both overweight and obese students across all self-efficacy domains. Underweight students demonstrated higher academic and social self-efficacy than obese students, while overweight students also reported higher academic self-efficacy than obese peers (p < .05). Similarly, non-Greek students reported higher involvement in all forms of bullying and victimization, whereas Greek students scored higher across all self-efficacy dimensions (p < .05).

Overall, the results indicate that gender, school transfer status, BMI, and ethnicity, though associated with small effect sizes, are systematically related to students' self-efficacy and bullying/victimization involvement.

Correlational analyses

Age was positively but weakly correlated with all forms of bullying, as well as with *verbal* and *total* victimization. In contrast, age was negatively correlated with total self-efficacy and with each of its three dimensions. All forms of bullying were strongly positively intercorrelated and also positively correlated with all victimization experiences. Conversely, all forms of bullying were significantly negatively correlated with self-efficacy. Moreover, all forms of victimization were strongly positively intercorrelated and were moderately negatively correlated with self-efficacy. Lastly, the three self-efficacy dimensions were strongly intercorrelated (Table 2).

Moderated linear regression analyses

The effect of self-efficacy dimensions on different forms of bullying/victimization was examined by hierarchical regression analyses. The findings highlighted that social self-efficacy was a significant predictor of *physical* bullying, $F(1, 2425) = 158.83$, $p < .001$, $b = -.21$, *verbal* bullying, $F(1, 2425) = 113.27$, $p < .001$, $b = -.16$, *relational* bullying, $F(1, 2425) = 54.54$, $p < .001$, $b = -.12$, *physical* victimization, $F(1, 2425) = 72.41$, $p < .001$, $b = -.15$, *verbal* victimization, $F(1, 2425) = 125.01$, $p < .001$, $b = -.20$, and *relational* victimization, $F(1, 2425) = 69.30$, $p < .001$, $b = -.22$.

Moreover, self-regulatory efficacy was a significant predictor of *physical* bullying, $F(1, 2425) = 567.73$, $p < .001$, $b = -.26$, *verbal* bullying, $F(1, 2425) = 720.45$, $p < .001$, $b = -.25$, *relational* bullying, $F(1, 2425) = 346.84$, $p < .001$, $b = -.20$, *physical* victimization, $F(1, 2425) = 169.99$, $p < .001$, $b = -.16$, *verbal* victimization, $F(1, 2425) = 224.68$, $p < .001$, $b = -.19$, and *relational* victimization, $F(1, 2425) = 124.13$, $p < .001$, $b = -.21$.

Lastly, academic self-efficacy also found to be a significant predictor of *physical* bullying, $F(1, 2425) = 254.67$, $p < .001$, $b = -.24$, *verbal* bullying, $F(1, 2425) = 282.25$, $p < .001$, $b = -.23$, *relational* bullying, $F(1, 2425) = 177.38$, $p < .001$, $b = -.19$, *physical* victimization, $F(1, 2425) = 92.63$, $p < .001$, $b = -.16$, *verbal* victimization, $F(1, 2425) = 118.41$, $p < .001$, $b = -.18$, and *relational* victimization, $F(1, 2425) = 57.53$, $p < .001$, $b = -.19$.

Moderation analyses were conducted to examine whether gender, age, transfer status, BMI, and ethnicity moderated the relationship between the three self-efficacy domains and six bullying/victimization outcomes. For each analysis, the Adjusted R^2 from the base model including the predictor and moderator was compared to the change in R^2 (ΔR^2) after adding the interaction term (see Table 3).

Results show that the relationships between all dimensions of self-efficacy and the three forms of bullying, as well as the relationship between social self-efficacy and *physical* victimization, were stronger for boys. In contrast, self-regulatory and academic self-efficacy showed stronger associations with *verbal* victimization for girls, and both social and self-regulatory efficacy were more strongly related to *relational* bullying among girls.

Moreover, older students exhibited stronger associations between social and academic self-efficacy and all bullying forms, with a similar pattern for the link between social self-efficacy and *verbal* victimization, which was also stronger among transfer students. For BMI, social and self-regulatory efficacy were more strongly related to *physical* bullying among underweight students, while academic self-efficacy was more strongly linked to *physical* victimization among obese students. Ethnicity moderated only two relationships, with self-regulatory efficacy and both *physical* and *verbal* victimization more strongly associated for non-Greek students. For all other tested relationships not previously discussed, no statistically significant moderating effects were observed.

Discussion

The study aimed to investigate how demographic characteristics moderate the relationship between different dimensions of self-efficacy and bullying/victimization forms.

Table 1. *Multivariate Analysis of Variances (in bold), and univariate Univariate Analysis of Variances for categorical demographic attributes.*

	Gender					**Transfer status**					**BMI**					**Ethnicity**			
	Wilks' Λ	*F*	*df*	*P*	*partial η²*	*Wilks' Λ*	*F*	*df*	*P*	*partial η²*	*Wilks' Λ*	*F*	*df*	*P*	*partial η²*	*Wilks' Λ*	*F*	*df*	*P*	*partial η²*
B	**.947**	**45.35**	**3**	**.001*****	**.053**	**.996**	**3.24**	**3**	**.021***	**.004**	**.988**	**3.36**	**9**	**.001*****	**.004**	**.992**	**6.16**	**3**	**.001*****	**.008**
PB		53.68	1	.001***	.022		6.74	1	.01**	.003		6.75	3	.001***	.008		18.01	1	.001***	.007
VB		135.73	1	.001***	.053		8.63	1	.003**	.004		8.43	3	.001***	.010		9.61	1	.002**	.004
RB		31.33	1	.001***	.013		3.56	1	.059	.001		4.10	3	.007**	.006		4.27	1	.039*	.002
V	**.972**	**23.59**	**3**	**.001*****	**.028**	**.982**	**15.10**	**3**	**.001*****	**.018**	**.974**	**7.09**	**9**	**.001*****	**.009**	**.971**	**23.73**	**3**	**.001*****	**.029**
PV		29.95	1	.001***	.012		14.21	1	.001***	.006		8.29	3	.001***	.010		33.69	1	.001***	.014
VV		1.91	1	.167	.001		39.09	1	.001***	.016		19.24	3	.001***	.023		67.27	1	.001***	.027
RV		9.67	1	.002**	.004		34.64	1	.001***	.014		9.78	3	.001***	.012		21.69	1	.001***	.009
SE	**.984**	**12.74**	**3**	**.001*****	**.016**	**.995**	**4.21**	**3**	**.006****	**.005**	**.976**	**6.64**	**9**	**.001*****	**.008**	**.961**	**32.72**	**3**	**.001*****	**.039**
SSE		1.53	1	.216	.001		6.03	1	.014*	.002		13.08	3	.001***	.016		56.21	1	.001***	.023
SRE		30.14	1	.001***	.012		8.59	1	.003**	.004		8.30	3	.001***	.010		77.56	1	.001***	.031
ASE		17.49	1	.001***	.007		10.62	1	.001***	.004		15.98	3	.001***	.019		62.67	1	.001***	.025

Note: B = Bullying, PB = Physical Bullying, VB = Verbal Bullying, RB = Relational Bullying, V = Victimization, PV = Physical Victimization, VV = Verbal Victimization, RV = Relational Victimization, SE = Self-Efficacy, SSE = Social Self-Efficacy, SRE = Self-Regulatory Efficacy, ASE = Academic Self-Efficacy.

$^{*}p \leq .05$, $^{**}p \leq .01$, $^{***}p \leq .001$.

Table 2. *Correlations among bullying, victimization, and self-efficacy*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	1											
2. Physical Bullying	.11*	1										
3. Verbal Bullying	.17*	.61*	1									
4. Relational Bullying	.08*	.48*	.51*	1								
5. Total Bullying	.16*	.79*	.93*	.72*	1							
6. Physical Victimization	.03	.35*	.29*	.26*	.35*	1						
7. Verbal Victimization	.08*	.26*	.29*	.25*	.32*	.53*	1					
8. Relational Victimization	.04	.18*	.20*	.23*	.24*	.41*	.64*	1				
9. Total Victimization	.07*	.30*	.31*	.29*	.35*	.69*	.94*	.82*	1			
10. Social Self-Efficacy	-.16*	-.25*	-.21*	-.15*	-.24*	-.17*	-.22*	-.17*	-.23*	1		
11. Self-Regulatory Efficacy	-.30*	-.44*	-.48*	-.35*	-.52*	-.26*	-.29*	-.22*	-.31*	.46*	1	
12. Academic Self-Efficacy	-.27*	-.31*	-.32*	-.26*	-.36*	-.19*	-.22*	-.15*	-.23*	.61*	.55*	1
13. Total Self-Efficacy	-.28*	-.36*	-.37*	-.28*	-.41*	-.23*	-.27*	-.20*	-.28*	.83*	.70*	.93*

Note: *$p \leq .01$.

The present findings highlight the role of gender in shaping bullying, victimization, and self-efficacy patterns. Consistent with prior research (e.g., Zych et al., 2021), males reported higher involvement in all forms of bullying perpetration and greater *physical* victimization, whereas females experienced more *relational* victimization and scored higher in self-regulatory and academic self-efficacy (Travlos et al., 2021). The positive associations between bullying perpetration and victimization suggest overlapping roles, while the consistent negative correlations with self-efficacy dimensions (Kokkinos & Kipritsi, 2012; Liu et al., 2023) underscore the protective function of self-efficacy beliefs, possibly by enabling students to manage social challenges and avoid maladaptive behaviors. These patterns may also reflect gendered socialization processes in which self-efficacy provides adaptive tools to navigate peer dynamics specific to each gender.

Moreover, the findings underscore the moderating role of gender in the relationship between self-efficacy and bullying perpetration. In line with previous research in Greece (Kokkinos & Kipritsi, 2012), all self-efficacy domains offered greater protection for males across all forms of bullying. Drawing on Social-Cognitive Theory (Bandura, 1997), self-regulatory efficacy may help male students exercise personal agency and adopt prosocial rather than aggressive strategies for gaining in-group status. Higher social and academic self-efficacy may further support constructive goal attainment, which, according to Self-Discrepancy Theory (Higgins, 1995), can offer alternative pathways to social status while reducing bullying involvement. These patterns could also reflect prevailing masculine norms in adolescence where competition for status is common and high self-efficacy may give male students more non-aggressive tools to meet these social goals. Taken together, this suggests that self-efficacy interventions targeting male students should incorporate explicit skill-building in prosocial status attainment and conflict resolution.

Table 3. *Hierarchical Regression Analysis Testing for Moderation Effects of Demographic attributes*

Outcome	Predictor	Moderator	*b*	*SE*	β	*p*	ΔR^2	*Initial* R^2
PB	SSE	Gender	.15	.03	.12	.001	.007	.081
	SRE		.09	.02	.10	.000	.006	.199
	ASE		.08	.03	.07	.009	.002	.109
VB	SSE	Gender	.12	.03	.11	.001	.007	.094
	SRE		.13	.02	.16	.000	.014	.260
	ASE		.13	.03	.12	.000	.008	.145
RB	SSE	Gender	.14	.03	.12	.001	.007	.033
	SRE		.06	.02	.07	.007	.002	.132
	ASE		.09	.03	.09	.002	.003	.076
PV	SSE	Gender	.08	.04	.06	.023	.002	.039
VV	SRE	Gender	-.09	.03	-.09	.000	.004	.088
	ASE		-.07	.03	-.06	.035	.001	.048
RV	SSE	Gender	-.12	.05	-.06	.032	.001	.032
	SRE		-.16	.04	-.11	.000	.006	.056
PB	SSE	Age	-.00	.00	-.58	.001	.003	.067
	ASE		-.00	.00	-.55	.003	.003	.095
VB	SSE	Age	-.00	.00	-.42	.020	.001	.062
	ASE		-.00	.00	-.47	.009	.002	.110
RB	SSE	Age	-.00	.00	-.66	.000	.005	.024
	ASE		-.00	.00	-.41	.026	.002	.067
VV	SSE	Age	-.00	.00	-.37	.042	.002	.050
VV	SSE	Transfer status	-.15	.05	-.06	.003	.003	.062
PB	SSE	Underweight	-.16	.07	-.04	.030	.000	.064
	SRE		-.14	.05	-.06	.002	.003	.191
PV	ASE	Obese	-.12	.06	-.05	.035	.001	.041
PV	SRE	Ethnicity	-.08	.03	-.07	.003	.003	.070
VV			-.05	.03	-.04	.040	.001	.098

Note: PB = Physical Bullying, VB = Verbal Bullying, RB = Relational Bullying, PV = Physical Victimization, VV = Verbal Victimization, RV = Relational Victimization, SSE = Social Self-Efficacy, SRE = Self-Regulatory Efficacy, ASE = Academic Self-Efficacy, *Initial* R^2 refers to Adjusted R^2 for the initial regression step.

Gender differences also emerged for victimization. Social self-efficacy more strongly protected males from *physical* victimization whereas females benefited more in relation to *relational* victimization. Consistent with prior work (Patrick et al., 2019), this may reflect the role of social skills in promoting prosocial and defending behaviors. For females, self-regulatory and academic self-efficacy more strongly buffered against *verbal* and *relational* victimization, potentially due to greater use of self-regulatory strategies to maintain social harmony (Andreou & Metallidou, 2004) under stronger socialization pressures (Travlos et al., 2021). According to Social Identity Theory, such adaptive self-regulation may reduce perceived identity threats while higher academic performance, previously linked to lower victimization risk (Espinoza et al., 2013), may reinforce this effect. Alternatively, some of these gendered patterns may partly reflect reporting tendencies as males might underreport certain

victimization types or perceive them differently while females may be more attuned to relational forms of aggression.

From a practical perspective, these results suggest that anti-bullying interventions could be more effective if they are tailored to gender-specific needs, for example by incorporating prosocial status-seeking strategies and peer leadership opportunities for males, and relational problem-solving and assertiveness training for female students.

Contrary to some studies (e.g., Vaillancourt et al., 2023) but consistent with recent findings from Greece (Travlos et al., 2021), no developmental decline in bullying or victimization was observed. This pattern may reflect contextual influences such as regional differences or variation in the effectiveness of anti-bullying initiatives across educational stages (Hensums et al., 2023). In addition, all self-efficacy dimensions showed a weak but negative correlation with age. This finding aligns with some reports (Dorfman & Fortus, 2019) yet contrasts with others (Farmer et al., 2022), possibly reflecting differences in developmental and educational challenges across countries. In contexts where adolescents face increasingly complex peer networks and greater academic demands, they may evaluate their abilities more critically, leading to lower perceived self-efficacy (Wigfield & Eccles, 2002).

The moderating role of age was most evident in the relationship between self-efficacy and bullying perpetration. The protective effects of both social and academic self-efficacy became stronger with age, supporting the hypothesis that the ability to set and achieve social and academic goals grows more relevant as adolescents navigate competitive peer environments (Kokkinos & Kipritsi, 2012). Within the framework of Social-Cognitive Theory, older students with higher self-efficacy may be better able to select prosocial and adaptive strategies to gain peer acceptance, reducing the need to resort to bullying. Academic self-efficacy may also anchor students in achievement-focused pursuits, which has been linked to lower involvement in bullying and victimization (Kisfalusi, 2018). For victimization, age effects were minimal, with the only significant finding indicating that social self-efficacy provided greater protection against *verbal* victimization among older students. Since *verbal* victimization has been shown to increase in secondary school (Chester et al., 2017), older adolescents with stronger problem-solving abilities may be more adept at defusing or avoiding such interactions. However, given that self-efficacy generally protects against victimization across development (Liu et al., 2023), this isolated effect should be interpreted with caution.

From a practical standpoint, these findings suggest that self-efficacy interventions in later adolescence may be especially effective in reducing bullying perpetration. Programs that build social and academic skills can help older students navigate peer competition, while guiding them to set realistic academic goals can strengthen confidence and personal agency. Additionally, training in conflict resolution and communication skills may help reduce *verbal* victimization in secondary education.

With regard to transfer status, and consistent with previous studies (e.g., Song et al., 2020), transferred students reported higher levels of all forms of victimization and lower levels of self-efficacy across all domains compared to their non-transferred peers. Unexpectedly, they also exhibited elevated levels of *physical* and *verbal* bullying perpetration. These findings suggest that students who perceive themselves as members of an out-group may use aggression to assert dominance and secure social standing in a new environment. At the same time, transferred students may experience deficits in social networks and increased anxiety, which not only hinder their ability to engage in relational aggression but also increase their vulnerability to victimization by established in-group members (Salmivalli, 2009).

Notably, social self-efficacy played a small yet significant protective role against *verbal* victimization, partially supporting our hypothesis. This aligns with Nowland et al. (2020) and highlights the role of self-efficacy in moderating the challenges associated with school transitions, helping students manage emotional and interpersonal difficulties. However, the limited moderating effect suggests that other personal factors, such as age, and contextual factors, including anti-bullying programs, teacher support, and classroom climate, may influence how self-efficacy translates into reduced bullying or victimization (Carson et al., 2013; Dorfman & Fortus, 2019). Recent research with college students further emphasizes the need for a nuanced approach to self-efficacy, incorporating individual, social, and transfer-specific variables. In this context, "self-efficacy for transfer" has been proposed as a more precise measure of school adjustment for transferred students (Buenaflor, 2023).

From a practical perspective, promoting self-efficacy is particularly relevant for reducing *verbal* bullying among transferred students, although generally they benefit from self-efficacy similarly to non-transferred peers. Teacher and peer support are crucial for facilitating school adjustment (Galand & Hospel, 2013). Practically, schools could implement structured buddy systems, cooperative learning groups, and social mentoring programs to ensure that transferred students quickly form supportive peer connections.

Consistent with previous research (e.g., Puhl & King, 2013; Rupp & McCoy, 2019), clear differentiated effects of BMI emerged across bullying, victimization, and self-efficacy domains. Consistent with existing theory and evidence, these findings suggest that students with overweight or obesity may be perceived as out-group members, making them more vulnerable to victimization and social exclusion. At the same time, lower self-efficacy levels among these students may reflect internalized stigma and reduced social resources (Puhl & Suh, 2015).

Surprisingly, BMI had a limited moderating effect on the relationship between self-efficacy and both bullying and victimization. Underweight students benefited more from self-regulatory efficacy in protecting against *physical* bullying perpetration. This finding partially supports the initial hypothesis and aligns with recent studies (Schunk & DiBenedetto, 2020) showing that students with physical vulnerabilities can use self-regulation and coping strategies to reduce involvement in bullying and victimization. For obese students, only academic self-efficacy offered increased protection against *physical* victimization.

These patterns suggest that in-group members with higher self-efficacy may access alternative pathways to achieve social status and employ self-regulatory strategies that reduce the likelihood of severe bullying perpetration. For out-group members, well-developed problem-solving skills may serve as a protective mechanism, helping them navigate challenging social dynamics and avoid victimization. Considering the significant differences in bullying, victimization, and self-efficacy across BMI groups, further research is needed to clarify how BMI influences the psychological mechanisms underlying peer aggression and individual resilience. These results indicate that interventions targeting students with physical vulnerabilities should focus on enhancing both self-regulation and domain-specific efficacy while also addressing stigma and peer inclusion.

Regarding participants' ethnicity, non-Greek students reported significantly higher levels across all forms of bullying and victimization, as well as significantly lower levels in all dimensions of self-efficacy compared to their Greek peers. This finding aligns with previous research (e.g., Kisfalusi et al., 2020) but only partially supports the initial hypothesis. This pattern may reflect efforts by ethnic minority students to counterbalance their victimization. These results are comparable to those observed among transferred students, possibly indicating that both non-Greek and transferred students are more frequently represented in the bully-victim role.

Partially supporting our hypothesis, a significant moderating effect of ethnicity emerged only in the relationship between self-regulatory efficacy and both *physical* and *verbal* victimization. To some extent, these findings are consistent with prior research (e.g., Lin et al., 2020), suggesting that ethnic minority students may rely more heavily on specific domains of self-efficacy to buffer against peer victimization. However, in most relationships examined, the results align with the meta-analysis by Liu et al. (2023), which reported a generally uniform protective role of self-efficacy regardless of ethnicity.

From a Social Identity Theory perspective, self-regulation skills may help ethnic minority students manage social interactions in ways that reduce behaviors perceived as challenging or threatening to the majority group's social dominance. In contrast, social and academic skills did not appear to lower victimization risk, potentially because these domains do not change underlying intergroup perceptions or overcome cultural barriers to acceptance. When majority–minority boundaries remain salient, social skills alone may not translate into greater integration. Supporting this interpretation, family attitudes and school culture have been shown to significantly shape the adaptation of ethnic minority youth (Makarova, 2019; Makarova et al., 2023). Practically, this suggests that interventions for ethnic minority students should combine self-efficacy skill-building with systemic anti-bias and inclusion policies that actively target peer norms and teacher-mediated support.

Overall, the findings suggest that while self-efficacy operates as a broadly protective factor against bullying and victimization, the mechanisms and strengths of this protection vary meaningfully across demographic groups. Enhancing prosocial status-seeking strategies for male students, promoting interpersonal problem-solving skills among females, providing targeted social integration opportunities for transferred and ethnic minority students, and supporting self-regulation skills in underweight students may increase the impact of anti-bullying programs. Embedding such tailored approaches within whole-school, culturally responsive frameworks could ensure that interventions address both individual competencies and broader environmental factors, thereby maximizing their effectiveness.

There are several limitations to consider. The cross-sectional design utilized in the study offers useful correlation information but does not permit causal inferences. Additionally, while the measures employed have demonstrated reliability in prior studies, their validity within this specific sample and cultural context has not been formally tested, which may influence how accurately they capture the intended constructs. Furthermore, bullying/victimization experiences were solely measured through self-reports, without incorporating objective measurements. Including peer reports and recording bullying incidents over shorter periods could enhance the reliability of the data. It is also possible that unmeasured confounding variables, such as socioeconomic status, parental involvement, or prior exposure to violence, may have influenced both self-efficacy and bullying/victimization, potentially biasing observed associations. An additional limitation of the present study is the omission of several key environmental covariates known to relate with both self-efficacy and bullying/victimization involvement (e.g., school climate). Moreover, to better understand the elevated levels of bullying perpetration observed among certain out-groups, such as transferred or ethnic minority students, future research may benefit from examining distinct bullying and victimization roles rather than treating these behaviors as continuous variables. Finally, although the large sample size increases statistical power overall, some of the interaction effects examined, particularly in smaller subgroups, may still have been underpowered, limiting the ability to detect more subtle moderation patterns. Lastly, a notable limitation was the relatively small effect sizes detected across most analyses, indicating lower practical significance despite statistical significance.

Despite these limitations, the study has notable strengths. A key strength of the study lies in its extensive sample size, encompassing 2,427 participants, which substantially improves the applicability

of the findings to broader populations. This large dataset enables more dependable statistical evaluations and bolsters the validity of the conclusions. Moreover, the study offers a comprehensive analytical approach by examining each dimension of self-efficacy in relation to each form of bullying and victimization separately, rather than treating these constructs uniformly. This level of granularity provides deeper insights into the nuanced ways self-efficacy interacts with different bullying/victimization experiences. Furthermore, the inclusion of both primary and secondary school stages offers a well-rounded understanding of the phenomenon, capturing its characteristics across various developmental phases.

This study provides a comprehensive examination of how different dimensions of self-efficacy relate to multiple forms of bullying and victimization, and uniquely explores these relationships among transferred students and other key demographic subgroups. The findings advance our theoretical understanding by highlighting how self-efficacy interacts with gender, age, transfer status, BMI, and ethnicity to influence bullying and victimization involvement. Practically, these results underscore the importance of designing targeted interventions that strengthen specific self-efficacy domains for vulnerable groups, such as social skills training for transferred students, conflict resolution programs for older adolescents, and relational problem-solving support for girls, thereby enhancing the effectiveness of bullying prevention efforts in schools. Overall, this study illuminates the nuanced mechanisms through which self-efficacy shapes peer interactions, offering actionable insights for both researchers and practitioners in educational settings. Further research is warranted to examine these dynamics longitudinally and across diverse cultural contexts.

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ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

Διερεύνηση της σχέσης ανάμεσα σε αυτό-αποτελεσματικότητα και εκφοβισμό στο σχολείο: Ο ρυθμιστικός ρόλος ατομικών παραγόντων

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ABSTRACT IN GREEK

Ο εκφοβισμός/θυματοποίηση στο σχολείο αποτελεί ένα σημαντικότατο ζήτημα στο σύγχρονο εκπαιδευτικό περιβάλλον, επηρεάζοντας εκατομμύρια μαθητές/τριες παγκοσμίως. Η παρούσα μελέτη εξετάζει τον ρυθμιστικό ρόλο δημογραφικών παραγόντων (φύλο, ηλικία, μεταγραφή, δείκτης μάζας σώματος και εθνικότητα) στη σχέση ανάμεσα στις διαστάσεις της αυτοαποτελεσματικότητας, και τους επιμέρους τύπους του εκφοβισμού και της θυματοποίησης. Το δείγμα της έρευνας αποτέλεσαν 2.427 Έλληνες μαθητές/τριες (M = 12,92, SD = 1,46), εκ των οποίων 1.216 ήταν κορίτσια και 1.211 ήταν αγόρια. Οι μαθητές/τριες φοιτούσαν από την Ε' τάξη του Δημοτικού έως και την Γ' τάξη του Γυμνασίου. Για τον εντοπισμό σχέσεων και στατιστικά σημαντικών διαφορών ανάμεσα στα επίπεδα των ανεξάρτητων μεταβλητών χρησιμοποιήθηκαν απλές πολυμεταβλητές αναλύσεις διακύμανσης, μονομεταβλητές αναλύσεις διακύμανσης, αναλύσεις γραμμικών συσχετίσεων και ιεραρχικές αναλύσεις παλινδρόμησης για όλες τις εξαρτημένες μεταβλητές. Σύμφωνα με την Κοινωνικογνωστική Θεωρία του Bandura και τη Θεωρία της Κοινωνικής Ταυτότητας, τα ευρήματα υποδεικνύουν ότι το φύλο, η ηλικία, η κατάσταση μεταγραφής, ο σωματικός τύπος, και η εθνικότητα διαφοροποιούν τη συσχέτιση μεταξύ αυτοαποτελεσματικότητας και συμμετοχής στο φαινόμενο. Τα αποτελέσματα αυτά παρέχουν χρήσιμες πληροφορίες για την ανάπτυξη σχολικών στρατηγικών πρόληψης και παρέμβασης με στόχο τη μείωση του φαινομένου.

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