



Defending behavior in school bullying: The role of empathic self-efficacy, social preference, and student-teacher relationship

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Received: 20 July 2022 / Accepted: 30 January 2024
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Abstract

Being able to defend victims of school bullying is central in any intervention; thus, it seems paramount to investigate which factors may contribute to defending behavior. The present report aims to investigate whether empathic self-efficacy is associated with helping behavior and whether interpersonal factors (i.e., social preference and student-teacher relationship) may interact with it. The sample comprised 249 middle-school students (47.80% boys) aged 11–14 years, who received peer nominations on defending behavior and social preference. Self-reports were used to assess empathic self-efficacy and the relationship with the teachers. Results highlight a positive association between empathic self-efficacy and defending behavior when social preference and a positive relationship with teachers were average or high but not when they were low. Results are discussed in light of the importance of considering individual and interpersonal factors to understand defending in bullying situations and to develop intervention programs.

Keywords Empathic self-efficacy · Defending behavior · Social preference · Relationship with teachers

1 Introduction

School bullying is a persistent and intentional form of aggression characterized by a power imbalance between perpetrators and victims (Olweus et al., 2019). It is a common experience for several youths and causes severe harm to all those implicated

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(Wolke & Lereya, 2015). It is considered a group process that does not solely involve bullies and victims but most students to a different extent (Hawkins et al., 2001). In this regard, the role played by those who defend the victims (i.e., actively trying to stop the aggression, seeking help, and comforting the victim) appears extremely important. Indeed, studies have shown that defenders are usually effective in stopping bullying acts (Hawkins et al., 2001; Salmivalli et al., 2011), and anti-bullying programs consistently aim to empower bystanders to intervene when witnessing someone being bullied (Kärnä et al., 2011; Polanin et al., 2012). Therefore, it is crucial to identify those factors that might promote defending behavior to improve efficacious interventions.

1.1 The role of empathic self-efficacy

Extant literature emphasizes the need to consider the interplays between individual and interpersonal variables when trying to comprehend what might foster youths' proneness to defend victims of school bullying (e.g., Peets et al., 2015; Pöyhönen et al., 2010; Pozzoli & Gini, 2010). The social cognitive theory by Bandura (1986), in which personal, behavioral, and environmental factors interact, seems particularly suitable to investigate defending in bullying dynamics, which are complex and include individual and interpersonal aspects (Clark & Bussey, 2020). A core individual dimension within this approach is self-efficacy, which refers to people's beliefs about their capacities to act successfully and achieve their goals in various situations; it is associated with self-regulation and persistence in a task and influences the choice of goals, the expectations of success, and the evaluation of risks and opportunities (Bandura, 1995; Ciucci et al., 2009; Di Giunta et al., 2010). Self-efficacy also plays an important role in contrasting bullying; in fact, it is positively associated with defending behavior (Chen et al., 2023). In this regard, it has been suggested that even highly empathetic bystanders are less prone to defend bullying victims if they lack self-efficacy (Barchia & Bussey, 2011; Pöyhönen et al., 2010; Yun, 2020).

Literature proposed the existence of different fields in which one can feel self-efficacious, such as self-regulation, affects, and academic skills (Bandura et al., 1995; 2003; Caprara et al., 2001). For the purpose of this study, we are interested in empathic self-efficacy, which is intended as the judgments that individuals hold about their abilities to be sensitive to another person's feelings, to recognize others' need for emotional support, and to respond empathetically to others' distress (Caprara et al., 2012; Eklund et al., 2012). Empathic self-efficacy has been found to be associated with empathic concern (Di Giunta et al., 2010) and with both affective and cognitive empathy (Grazzani et al., 2015). Although empathy has a role in defending behavior (Deng et al., 2021; Rieffe & Camodeca, 2016), "it cannot be considered per se a sufficient condition, and [...] other variables may be important in favoring or limiting children's helping behavior towards victimized peers" (Gini et al., 2008, p. 101). Defending behavior in bullying is demanding and can be challenging to act. In such a difficult situation, empathic self-efficacy could play an important role; in fact, feeling able to perceive the emotions of others and knowing how to respond appropriately could push people to defend those being attacked. Empathic self-efficacy, in fact, is a predictor of prosocial behavior, even stronger than other self-efficacy

variables or personality traits (Bandura et al., 2003; Caprara et al., 2012; Eklund et al., 2012), maybe because it increases motivation to help and likelihood to intervene in problematic situations. To the best of our knowledge, however, only one study investigated the specific role of empathic self-efficacy in defending behavior in bullying, indicating a positive correlation between them in cyberbullying situations (Clark & Bussey, 2020). As asserted by the authors, although bullying and cyberbullying have specific peculiarities that may affect bystander behavior, there is also an overlap between some mechanisms of traditional bullying and cyberbullying. On these bases, we expect that empathic self-efficacy would be associated with defending behavior also in traditional bullying. However, not being able to rely on specific literature on empathic self-efficacy and defending behavior, we do not know whether this association may depend on other variables, as, for instance, has been found for empathy (Gini et al., 2008). We assume that the association between empathic self-efficacy and defending behavior may also depend on other variables, whose role is what we will introduce in the following paragraph.

1.2 The intervention of interpersonal variables

Bandura's framework (1986) proposes that, besides individual factors, behavior is also influenced by interpersonal aspects. Talking about school bullying and a classroom context, relationships with peers and teachers seem particularly relevant and able to interact with individual dimensions to modify behaviors. This might be the case also for the link between empathic self-efficacy and defending behavior, which could be enhanced (or weakened) by social relationships in the classroom (Fredrick et al., 2020; Longobardi et al., 2020; Peets et al., 2015).

Social preference (i.e., being liked by peers) in the classroom is considered one of the most influential factors for adaptive functioning, emotional wellbeing, and prosocial behavior (Cillessen & Rose, 2005), especially during adolescence, when youths define their identity and act based on their reputation. Being liked and appreciated by peers seems paramount also for defending behavior in bullying situations (Camodeca & Coppola, 2019; Lambe et al., 2019). Caravita et al. (2009) found that social preference moderated the link between affective empathy and defending behavior in boys, with empathy being more strongly associated with defending behavior among those youths highly preferred by peers. Similarly, Pöyhönen et al., (2010) found a weak direct association between affective empathy and defending behavior, which became stronger when students could count on a secure social position - assessed as perceived popularity - in the group. In contrast, other studies did not confirm the moderation of social status in the association between empathy and defending behavior (Kim et al., 2013; Lucas-Molina et al., 2018). Variability of the results might be partially explained by methodological differences among the studies, such as measures used to assess empathy, defending behavior, and social preference, and the cultural background of the samples. No studies are available examining the role of social preference in the association between empathic self-efficacy and defending behavior.

As to the relationships with teachers, a vast literature agrees that these are fundamental for students' development. On the one hand, and in line with the social cognitive framework (Bandura, 1986), children learn and behave also through vicari-

ous experiences and observing others, in particular when models are primary socialization agents, such as teachers, who guide their pupils, indicate and reinforce the correct way to react in social situations, and support proper behavior (Wachs et al., 2020). On the other hand, teacher-student relationships have also been studied within the attachment theory, according to which children are predisposed to develop an affective bond with those adults who can provide a secure base that, in turn, is predictive of psychological and socio-emotional adjustment (Sroufe & Waters, 1977). Similarly to parents, teachers are considered attachment figures contributing to their students' social competence and even compensating for risk conditions. Assuming either attachment or social cognitive mechanisms, findings in the literature claim that a supportive and warm relationship with the teacher is associated with positive outcomes in students' behavior and wellbeing. Studies on school bullying report that perceiving support from teachers is associated with defending behavior, willingness, and motivation to intervene (Camodeca & Coppola, 2019; Jungert et al., 2016; Wachs et al., 2019). However, to the best of our knowledge, no previous study investigated whether a positive relationship with the teacher interacts with empathic self-efficacy in influencing defending behavior.

Provided that social preference among peers and a positive relationship with teachers have often been considered protective factors, we have reason to believe that they may have a role in enhancing the association between empathic self-efficacy and defending behavior.

1.3 The current study

The specific aspect of empathic self-efficacy and the intervening role of social relationships in the classroom deserve attention for their possible impact on defending behavior in bullying situations. We think that empathic self-efficacy is a core construct to understand defending behavior because it gives reason to the efforts to help someone in need: You would not spend energy and take the risk of defending a victimized peer unless you feel capable of managing social interactions demanding such empathy (Clark & Bussey, 2020; Di Giunta et al., 2010). Although empathy and empathic self-efficacy are strongly linked with each other, "a person could be empathic yet not hold self-perceptions consistent with these abilities (or vice versa)" (Di Giunta et al., 2010, p. 2). Feeling capable of understanding and responding to someone else's distress, thus managing empathic feelings and orienting emotions towards others, underlines emotional awareness and hinders personal distress or overwhelming feelings, which is relevant for prosocial behavior (Eklund et al., 2012). As other domains of self-efficacy are associated with a sense of mastery, we hypothesized that empathic self-efficacy would contribute to adolescents' control of situations and behaviors and be associated with defending behavior in bullying (Hypothesis 1).

However, the strength of this association could vary based on the relationships in the school contexts and be reinforced by two protective factors, such as social status in the peer group and the quality of the student-teacher relationship, since "defending is more than a product of individual differences" (Lambe et al., 2019, p. 52). Thus, the current study also aimed to explore whether social preference and student-teacher relationship were associated with defending behavior and whether they moderated

the association between empathic self-efficacy and defending behavior. Specifically, we expected empathic self-efficacy to be more strongly associated with defending behavior in those students more appreciated by their peers (Hypothesis 2) and with a better relationship with their teachers (Hypothesis 3). If students perceive support from their peers and teachers, they will likely be supportive of others in need (Wachs et al., 2020).

2 Method

2.1 Participants and procedure

Participants were 249 middle-school students (47.80% boys) aged 11–14 years (mean age = 12.58; $SD = 0.91$), attending 15 classrooms from 4 different schools in Northern Italy. Sixty-nine students (27.70%) were 6th graders, 62 (24.90%) were 7th graders, and 118 (47.40%) were 8th graders. Most students (98%) were born in Italy; 9.90% of students had both parents born abroad, while the remaining 90.10% were born to at least one Italian parent. Families were mostly from the middle and upper classes. Trained master's degree students in Psychology collected the data during school hours in the classrooms.

All parents signed a written informed consent form to let their children participate. The study was conducted according to the guidelines of the Declaration of Helsinki and was approved by the Ethical Committee of the University of Milano-Bicocca (Milan, Italy).

2.2 Measures

2.2.1 Defending behavior

Three peer-nomination items were used to assess students' tendency to defend victims of bullying (Pozzoli et al., 2012). Students were asked to indicate the classmates who more frequently helped or comforted those excluded by their peers and defended those beaten up or threatened. Scores obtained by each participant were divided by the number of nominators to control for classroom size. In the current sample, Cronbach's alpha was 0.84.

2.2.2 Empathic self-efficacy

A short version of the Empathic Self-Efficacy scale from the Questionnaire on Perceived Emotional Self-Efficacy (Caprara et al., 2001) was administered. The scale evaluates the perceived capacities in recognizing emotions and needs in others. Ciucci et al. (2009) validated a short version with 4 items, more suitable to be employed with preadolescents; this version reported good psychometric properties in Italian samples (Ciucci et al., 2009; Grazzani et al., 2015). Students were asked to rate 4 items on how well they could put themselves in their peers' shoes, understand the emotional consequences of their actions, understand when someone needs to be helped, and dis-

cern when others need to be comforted, even if not directly/openly asked. Responses were given on a 5-point Likert scale (from 1 = *not able at all* to 5 = *absolutely able*). In the current sample, Cronbach's alpha was 0.68.

2.2.3 Social preference

Social preference was assessed with two peer-nomination items. Students were asked to indicate the classmates they liked the most and the classmates they liked the least (Coie et al., 1982). Nominations obtained were divided by the number of nominators, and least-liked scores were subtracted from most-liked scores to obtain a social preference score.

2.2.4 Student-teacher relationship

The quality of the student-teacher relationships was assessed with the corresponding subscale of the Questionnaire on School Wellbeing (QBS) (Tobia & Marzocchi, 2015). This subscale includes 5 items assessing trust in teachers, feeling of comfort with them, the possibility of talking with them about difficulties and troubles, perception of their help, and ability to encourage engagement. Students responded whether the items were true on a 3-point Likert scale (from 0 = *not true* to 2 = *very true*). In the current sample, Cronbach's alpha was 0.82.

2.3 Statistical analyses

All the statistical analyses were run on IBM SPSS Statistics for Windows, Version 26.0. The percentage of missing values across all the variables varied between 0% and 8.40%. Overall, 1.95% of the values were incomplete. Little's MCAR test suggested that data were likely missing completely at random ($\chi^2(17) = 19.89, p = .280$). Therefore, statistical analyses were conducted using listwise deletion.

We computed descriptive statistics and ran zero-order correlations among the study variables. To test the moderation role of social preference and student-teacher relationship, we run a regression model using PROCESS v.4.0 macro for SPSS (model 2) (Hayes, 2017)¹. Empathic self-efficacy was used as the independent variable, defending behavior as the dependent variable, and social preference and student-teacher relationship as the moderators. To further explore significant moderation models, we individually tested the effects of the focal predictor at different values of the moderators (mean value $-1SD$, mean value, mean value $+1SD$). To make it easier to read the results, the value of the moderators equal to the average value $-1SD$ have been labeled "low," those equal to the average value "mean," and those equal to the average value $+1SD$ have been labeled "high." Based on literature and our correlations showing that girls and younger students are more prone to defend victims (Ma et al., 2019; Fox et al., 2014), we decided to run a further regression model using gender and school grade as covariates. Before doing so, we explored whether gender and school grade interacted with the main predictors (i.e., empathic self-efficacy, social preference, and student-teacher relationship) and with the two hypothesized interactions (i.e., empathic self-efficacy \times social preference and empathic self-efficacy

Table 1 Zero-order correlations and descriptive statistics

	1	2	3	4	5	6
1. Gender	1					
2. Grade	-0.063	1				
3. Defending Behavior	0.225**	-0.255**	1			
4. Empathic Self-Efficacy	0.071	0.091	0.236**	1		
5. Social Preference	0.097	0.044	0.351**	0.031	1	
6. S-T Relationship	0.269**	-0.151**	0.285**	0.186**	0.054	1
Mean	-	-	0.133	3.564	0.141	1.254
SD	-	-	0.105	0.752	0.271	0.506

Note. S-T Relationship: Student-Teacher relationship. Gender was coded as boys=-0.5, girls=0.5

** $p \leq .01$

Table 2 Moderation model predicting defending behavior

	b	β	<i>p</i>	95% CI	
Empathic Self-Efficacy	0.025	0.165	.004	0.008	0.041
Social Preference	0.132	0.326	<.001	0.086	0.179
S-T Relationship	0.048	0.226	<.001	0.008	0.135
Empathic S-E \times Social Preference	0.072	0.129	.027	0.023	0.073
Empathic S-E \times S-T Relationship	0.039	0.136	.021	0.006	0.071

Note. CI: Confidence Intervals. S-T Relationship: Student-Teacher Relationship. S-E: Self-Efficacy

\times student-teacher relationship) to ensure that their effects on defending behavior were not dependent on students' gender or grade. All variables that defined products were mean-centered prior to analysis. Based on a sensitivity analysis (error probability=0.05; power=0.90) conducted with G*Power (Faul et al., 2007), we were able to detect an effect size (f^2) of 0.05.

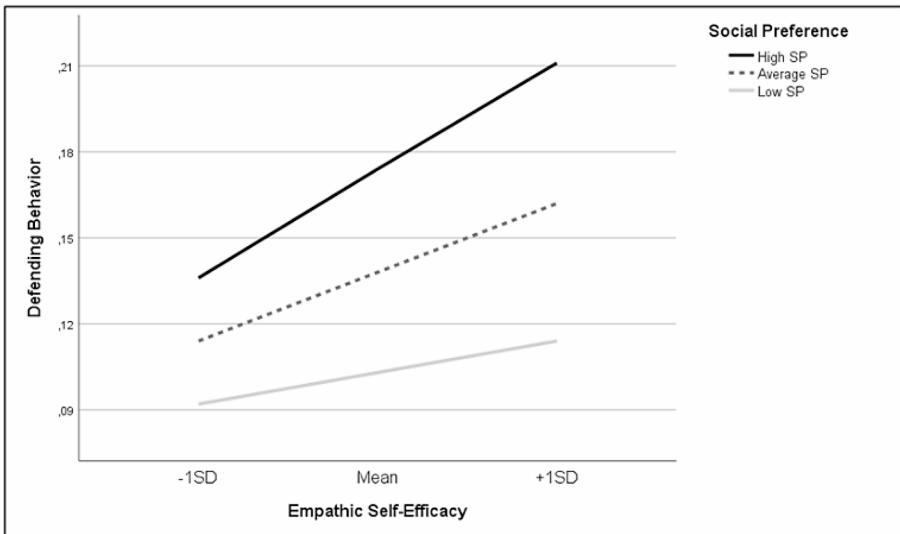
3 Results

The zero-order correlations (Table 1) showed that defending behavior was positively and significantly correlated with gender (higher for girls than boys), empathic self-efficacy, social preference, and student-teacher relationship, while it was negatively and significantly associated with school grade.

The regression model (Table 2) showed that empathic self-efficacy, social preference, and student-teacher relationship were significantly associated with defending behavior. Moreover, results showed that social preference and student-teacher relationship moderated the association between empathic self-efficacy and defending behavior.

Specifically, as shown in Fig. 1A, empathic self-efficacy was positively associated with defending behavior for average ($b=0.032$, $\beta=0.229$, $p<.001$, 95% CI [0.015, 0.049]) and high ($b=0.050$, $\beta=0.354$, $p<.001$, 95% CI [0.025, 0.074]) levels of social preference, but not for low ones ($b=0.015$, $\beta=0.104$, $p=.239$, 95% CI [-0.010, 0.039]). Similarly, as shown in Fig. 1B, empathic self-efficacy was positively associated with defending behavior for average ($b=0.026$, $\beta=0.185$, $p=.005$, 95% CI

A



B

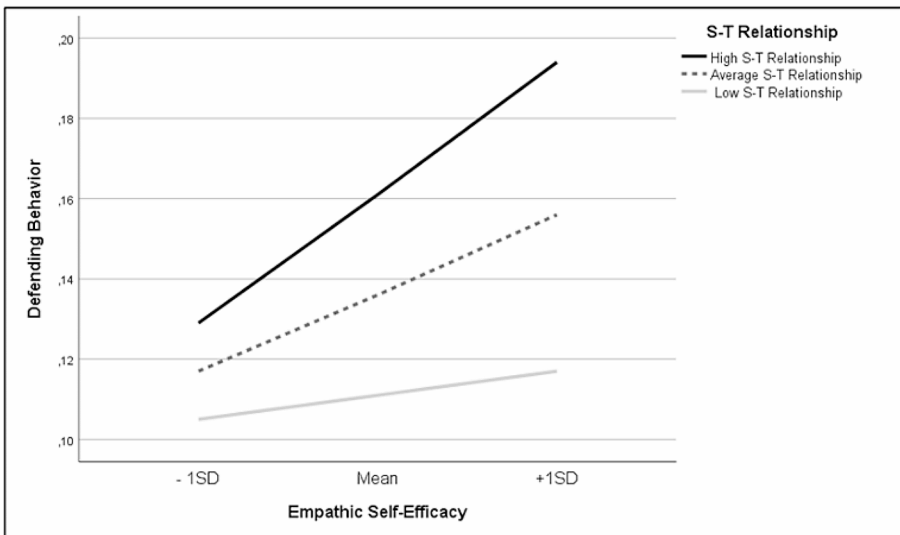


Fig. 1 Social preference (A) and student-teacher relationship (B) moderating the link between empathic self-efficacy and defending behavior. *Note.* SP: social preference; S-T relationship: student-teacher relationship

[0.008, 0.044]) and high ($b=0.044$, $\beta=0.311$, $p=.001$, 95% CI [0.019, 0.068]) levels of positive student-teacher relationship, but not for low ones ($b=0.008$, $\beta=0.060$, $p=.528$, 95% CI [-0.018, 0.034]).

The analysis exploring the interactions with students' gender or grade revealed that these variables neither interacted with the independent variables nor with the 2-way interactions tested in the previous model, with only one exception pointing to a significant interaction between students' grade and social preference ($b=-0.016$, $\beta=-0.144$, $p=.009$). However, further exploration of this interaction showed that social preference was significantly associated with defending behavior in all the grade levels, but with some differences in strength between them (6th grade: $b=0.243$, $p<.001$; 7th grade: $b=0.155$, $p<.001$; 8th grade: $b=0.070$, $p=.026$), suggesting weaker associations with increasing grades.

We then proceeded with the addition of these covariates to the model and found that results did not change compared with those obtained without covariates. Thus, empathic self-efficacy, ($b=0.029$, $\beta=0.204$, $p<.001$, 95% CI [0.013, 0.044]) social preference ($b=0.133$, $\beta=0.343$, $p<.001$, 95% CI [0.089, 0.177]), and student-teacher relationships ($b=0.032$, $\beta=0.152$, $p=.012$, 95% CI [0.007, 0.056]) were all significantly associated with defending behavior. In addition, empathic self-efficacy \times social preference ($b=0.079$, $\beta=0.153$, $p=.010$, 95% CI [0.019, 0.139]) and empathic self-efficacy \times student-teacher relationship ($b=0.041$, $\beta=0.149$, $p=.010$, 95% CI [0.010, 0.073]) were significantly associated with defending behavior. Specifically, empathic self-efficacy was positively associated with defending behavior for average ($b=0.029$, $\beta=0.210$, $p=.001$, 95% CI [0.013, 0.045]) and high ($b=0.049$, $\beta=0.346$, $p<.001$, 95% CI [0.027, 0.071]) levels of social preference and for average ($b=0.025$, $\beta=0.180$, $p=.005$, 95% CI [0.008, 0.043]) and high ($b=0.044$, $\beta=0.316$, $p=.001$, 95% CI [0.019, 0.068]) levels of positive student-teacher relationship. Again, when the levels of social preference and student-teacher relationship were low, empathic self-efficacy was not associated with defending behavior. Finally, in this model gender was positively ($b=0.029$, $\beta=0.131$, $p=.021$, 95% CI [0.004, 0.053]) and grade negatively ($b=-0.033$, $\beta=-0.269$, $p<.001$, 95% CI [-0.047, -0.020]) associated with defending behavior, indicating that girls and younger students were more prone to defend their victimized peers.

4 Discussion

The current study investigated the role of empathic self-efficacy, social preference, and student-teacher relationship on defending behavior in a sample of Italian middle-school students. It also tested whether relationships in the classroom context moderated the association between empathic self-efficacy and defending behavior. In the following, we first discuss the direct association between empathic self-efficacy and defending behavior, then we explain the moderation effects. Finally, we trace the limitations and strengths of the study and advance suggestions for intervention.

Consistent with previous studies on empathic responsiveness and self-efficacy (Clark & Bussey, 2020; Lambe et al., 2019), our results showed that empathic self-efficacy was associated with defending behavior. This result demonstrated the

importance of empathic self-efficacy in promoting defending behavior in traditional bullying, confirming what was previously found in cyberbullying (Clark & Bussey, 2020). In line with Bandura's (1986) social cognitive theory, self-efficacy beliefs are necessary to feel motivated and confident to act and, eventually, to engage in effective, successful behavior. Our findings support that trusting one's own abilities to feel empathy indeed makes adolescents more motivated to act prosocially and intervene in bullying episodes (Clark & Bussey, 2020).

However, this association did not hold in all conditions, indicating that individual and interpersonal factors might interact in influencing defending behavior (Caravita et al., 2009; Lambe et al., 2019; Peets et al., 2015; Pozzoli & Gini, 2010). As a matter of fact, results showed the moderating role of social preference and student-teacher relationship. Specifically, empathic self-efficacy was associated with defending behavior when social preference was average or high but not when it was low. Likewise, it was associated with defending behavior when students' relationships with their teachers had an average or good quality, but not when these were poor. In other words, when students are not well-liked by their peers or do not have a positive relationship with their teachers, they tend not to defend the victims of bullying. Therefore, sometimes, empathic self-efficacy might not be sufficient to make youths take action, and other variables may be important in favoring defending behavior. Our study proposes that positive relationships in the school context might be essential in promoting this kind of helping behavior, which would need more courage than other types of defense, considering that school bullying involves all peers and implies dynamics of revenge, fear, and reputation, which may last for a long time. Even though defending behavior is often associated with positive outcomes (Sainio et al., 2011), it is also a challenging and stressful experience that comes with a cost (e.g., psychosocial difficulties) (Lambe et al., 2017). Therefore, it is possible that lacking support from classmates and teachers might lead even students who feel capable of empathy to withdraw from helping their peers because they feel at great risk for negative consequences (e.g., being bullied, isolated, or judged negatively). Instead, when they perceive to be backed up by their peers and supported by teachers, this risk might be reduced, and they are more willing to take action and defend bullying victims. Finally, the results showed that social preference was more strongly associated with defending behavior in lower than higher grades; future studies could be useful to explore this aspect more in depth.

The results of this study need to be interpreted in light of some limitations. The study cross-sectional nature prevents us from inferring causal relations between the variables, which could indeed influence each other in a virtuous circle. Longitudinal data could also shed light on the developmental pathways of empathic self-efficacy and defending behavior, which could vary from childhood to early adolescence to late adolescence. Findings could not be generalized to other populations, given the specific area of recruitment and the small sample size. In addition, we did not assess empathy, which is associated with empathic self-efficacy and can share a common variance with it (Di Giunta et al., 2010; Grazzani et al., 2015). Empathy has been also found to contribute to defending behavior directly (Deng et al., 2021; Rieffe & Camodeca, 2016) and in interaction with social preference (Caravita et al., 2009) or through student-teacher relationship (Rizkyanti et al., 2021). For these reasons, the

absence of an empathy measurement and the impossibility of controlling for it in the statistical analyses do not ensure that the effect of empathic self-efficacy on defending behavior was not influenced by the effects of empathy. Even though some previous studies showed a significant association between aspects of self-efficacy (e.g., social self-efficacy, defending self-efficacy) and defending behavior over empathy (e.g., Gini et al., 2008; Wachs et al., 2023), currently, no evidence exists for empathic self-efficacy. Therefore, further studies are needed to better understand the relationship between empathy, empathic self-efficacy, and defending behavior. Finally, future studies could take into account other individual and interpersonal variables that may intervene to explain defending behavior, such as temperamental traits or relationships in the family.

Some strengths can also be highlighted, such as the use of a multi-informant approach (self- and peer reports) that reduces the risk of shared variance. Assessing empathic self-efficacy is a novelty point, which underlines the importance of believing to be capable of being empathic. Overall, our results highlight the contribution of individual characteristics (i.e., empathic self-efficacy) and interpersonal factors (i.e., social preference and student-teacher relationship) in promoting defending behaviors among students. They further suggest that cultivating positive and trusting relationships at school could encourage even empathically self-efficacious students to intervene when witnessing a peer being bullied, emphasizing a cumulative effect of protective factors.

Implications for interventions may also be suggested, given that self-efficacy beliefs can be promoted and learned (Di Giunta et al., 2010). According to Bandura (1982), self-efficacy develops thanks to models' observation, mastery experiences, persuasion, and physiological state. Intervention programs may, therefore, be developed to enhance empathic self-efficacy as well, through, for instance, "verbal persuasion discussing the benefits of intervening and role play exercises targeting mastery and vicarious experiences in defending as well as reduction in physiological stressors via means of exposure exercises" (Clark & Bussey, 2020, p. 5). In addition, efforts should be put into creating a positive climate in the classroom, in which students appreciate each other and nobody is withdrawn or rejected, and in which teachers hold a caring relationship with their pupils to strengthen their self-efficacy and motivation to defend (Jungert et al., 2016). In such an atmosphere, students are more motivated to stand up for their victimized peers, with a consequent reduction in bullying episodes.

Funding Open access funding provided by Università degli Studi di Udine within the CRUI-CARE Agreement. The present study was financed by the Italian Ministry of University, within the PRIN program (Relevant National Interest Research Projects), grant number 20173E3Z7W. Open access funding provided by Università degli Studi di Udine within the CRUI-CARE Agreement.

Declarations

Ethics approval and consent to participate All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Institutional Review Board of the University of Milano-Bicocca, Milan, Italy.

Consent to participate All parents signed a written informed consent form to let their children participate.

Conflict of interest The authors declare that they have no conflict of interest.

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