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REGISTERED REPORT

Feeling better now? Being defended diminishes daily mood problems and self-blame in victims of bullying

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Abstract

Background: School bullying is a group phenomenon in which being defended by peer bystanders may buffer against the development of psychological problems in victims.

Aims: This registered report examines whether being defended diminished victims' daily mood problems and self-blame, both from a within- and between-person perspective.

Materials and Methods: Daily diary data were collected from $n = 1669$ Finnish 7th–9th grade students (M age = 14.45; 55.5% girl) across 3 weeks. In $n = 1329$ out of 12,366 assessments (10.7%), students indicated that schoolmates victimized them on the day of bullying.

Results: Multi-level regression analyses indicated that students reported lower depressed mood, greater positive mood and lower self-blame on days that they were victimized and defended as compared to days when they were victimized but non-defended. Effect sizes were medium for depressed mood and small for positive mood and self-blame. Repeated victims ($n = 144$) were less likely to blame themselves for victimization on days they were defended, which, in turn, diminished feelings of humiliation (mediation).

Discussion: Our findings indicate that being defended benefits victims of bullying by mitigating mood problems, both directly and indirectly via diminished self-blame.

Conclusion: Anti-bullying programmes that encourage peer defending have the potential to improve victims' psychological adjustment, even on a daily basis.

KEYWORDS

being defended, bullying, bystanders, daily mood, self-blame, victimization

BACKGROUND

School bullying – defined as intended, repetitive acts of aggression in the context of a power imbalance between victims and perpetrator(s) – remains a pervasive and significant health concern worldwide, with devastating consequences for youth psychological adjustment: many victims suffer from depressive symptoms, low self-esteem, and anxiety (Moore et al., 2017). Victimization may not only have severe psychological consequences in the long term (e.g., months, years, or even decades after exposure) but also on a daily basis by affecting adolescents' mood (Morrow et al., 2019). In fact, daily experiences of victimization may lead to increases in students' negative mood and decreases in positive mood which, if repeated over time, may be one of the underlying mechanisms through which victimization ultimately leads to severe psychological problems (DesRoches & Willoughby, 2014; Morrow et al., 2014). Another mechanism through which victimization could lead to psychological problems is by affecting students' cognitions – in particular, their causal attributions for victimization. Previous work has shown that victims often blame themselves for the situation (i.e., "I am being bullied because I am different from others"; Schacter & Juvonen, 2015). These internal causal attributions may increase feelings of hopelessness and shame and elicit passive coping styles, and may therefore be a prominent reason why victims develop psychological problems (Graham & Juvonen, 1998).

Importantly, the extent to which daily instances of victimization adversely impact students' mood or cognitions may depend on various characteristics of the daily victimization experiences, such as the number of bullying perpetrators, the presence of bystanders, and in particular the behavioural reactions of these bystanders, such as defending (Nishina & Bellmore, 2010). These factors have been referred to as micro-contextual characteristics because they can fluctuate from day to day (Nishina, 2012). Interestingly, even though bullying is a group process in which defending behaviour of bystanders is assumed to benefit victims' adjustment (Salmivalli et al., 2011), the extent to which a victim is being defended has been largely overlooked as micro-contextual characteristic affecting victims' daily mood and cognitions.

Defending refers to prosocial actions of peers that are undertaken in response to a bullying situation and can involve behaviours that are bully-directed (i.e., standing up against a bully) and victim-directed (i.e., comforting a victim; Reijntjes et al., 2016). Defending behaviours signal that peers disapprove of the bullying behaviours and that they care about the victims, which may protect victims against mood problems. Moreover, it has been theorized that being defended may diminish victims' tendency to blame themselves (Graham & Juvonen, 1998; Salmivalli et al., 2021). Therefore, this study applies a daily diary design to examine the role of being defended in victims' positive mood and two types of negative mood (i.e., feelings of humiliation and depression) as well as their cognitions (i.e., self-blame) in adolescence.

The role of being defended in victims' daily mood

Bullying is a group phenomenon: on average, peers are present in 80% of bullying episodes (Craig et al., 2000). Previous work has shown that only a minority of these bystanders reach out to help victims (about 30%; Nishina, 2012). The silence of passive bystanders is assumed to hurt victims even more than the bullying itself (Jones et al., 2015). For instance, one study found that students who were victimized while an indifferent outsider was present reported higher levels of loneliness, social anxiety and depressive symptoms than students who were victimized while an outsider joined in the bullying (Ma & Chen, 2017). For this reason, many anti-bullying programs encourage youth to *defend* victims in the hope that this would diminish victims' psychological problems (Salmivalli et al., 2021).

This approach is consistent with existing theoretical work. According to the stress-buffering hypothesis (Cohen & Wills, 1985), receiving support may buffer against stress that arises when a person is in a threatening situation and lacks an appropriate coping response (Lazarus & Launier, 1978). Being a victim of bullying is likely perceived as a threatening situation signalling that adolescents are not welcome in their peer group (Schacter & Juvonen, 2020). Many victims of bullying have difficulties

to properly stand up for themselves and hence to cope with this situation (Tenenbaum et al., 2011). If victims are being defended, they may realize that others can and will provide necessary resources and help. This may redefine the potential for harm posed by the bullying situation and hence reduce victims' mood problems (Cohen & Wills, 1985). Moreover, being defended can be seen as an emotional form of support. While being victimized poses a threat to students' feelings of belonging and can make them feel worthless, defending behaviours signal that others do not condone the bullying and consider the victims as valuable enough to stand up for or to be looked after (Laninga-Wijnen, van den Berg, et al., 2023). On a daily basis, being defended during the instances of victimization may therefore buffer against mood problems.

Only a handful of studies have examined the potential beneficial psychological effects of being defended. These studies predominantly took a *between-person approach* and used survey data in which youth had to report on victimization experiences and psychological symptoms that occurred across *large time spans*, such as over the past few months. Two cross-sectional studies adopting such approach found defended victims to report higher self-esteem (Sainio et al., 2011) and lower loneliness, anxiety, and depression (Ma & Chen, 2017) as compared to non-defended victims. Another cross-sectional study, however, detected *no* association between being defended and victims' internalizing distress (Jones et al., 2015). The only longitudinal study on this topic demonstrated that victims who were defended at the start of the school year reported a relatively stronger increase in feelings of belonging to their peer group towards the end of the school year than non-defended victims. Defended victims, however, did not differ from non-defended victims with regard to their development in self-esteem or depressive symptoms. Moreover, defended victims still increased more in psychological problems as compared to non-victims over time (Laninga-Wijnen, van den Berg, et al., 2023). Thus, despite some inconsistencies, most of previous studies suggest that being defended may exert at least some beneficial effect on victims' psychological adjustment.

Although these previous studies provide valuable initial insights, they suffer from at least three limitations that could be overcame by daily diary methods. First, previous studies have relied on general (retrospective) self-reported questionnaires about the estimated frequency (e.g., "once a week", "a couple of times a month") of victimization, being defended, and psychological problems across relatively *long time-spans*, e.g., over the past months (Laninga-Wijnen, van den Berg, et al., 2023; Sainio et al., 2011). Given that youth need to recollect or estimate their social and psychological experiences across months, these studies are subject to memory bias and other cognitive distortions. Collecting daily diary reports right after adolescents' school days may reduce such biases (Bolger et al., 2003; Eckenrode & Bolger, 1995). Second, studies that focus on longer-term changes in psychological adjustment do not provide insight into processes that unfold over shorter time-spans, such as daily dynamics in victimization, being defended, and mood, which may underlie the development of victims' psychological problems. Third, previous studies solely focused on *between-person* differences, for instance, by examining whether defended victims differ from non-defended victims in psychological functioning. However, the extent to which students are victimized and defended may fluctuate strongly *within persons* from day to day (Nishina, 2012; Reavis et al., 2015). Therefore, in order to further understand the role of being defended in victims' adjustment, it is essential to not only examine between-person but also within-person processes. In other words, it is crucial to examine whether students report fewer mood problems on days when they are victimized *and* defended, in comparison to days when they are victimized but *not* defended.

Even though various daily diary studies have indicated that students experienced a more negative mood (i.e., feelings of humiliation and depression; Herres et al., 2016; Nishina, 2012; Nishina & Juvonen, 2005) and a less positive mood (Reavis et al., 2015) on days that they are being victimized, it remains largely unknown whether being defended can buffer against these mood fluctuations. Only two previous daily diary studies have examined whether having bystanders who intervene in peer victimization buffers against mood problems (Nishina, 2012; Reavis et al., 2015). One study followed 300 sixth and ninth-grade students across 5 days (Nishina, 2012). It revealed that students felt more strongly humiliated on days when they were victimized than on days when they were non-victimized, but only if

they did not receive help. Another study focusing on both worried *and* positive mood across a 7-day time span among 77 fifth-grade students revealed that students reported a less positive mood on days when they had negative peer experiences (i.e., when somebody was mean to them or teased them), especially when nobody intervened (Reavis et al., 2015). Thus, these two studies provide preliminary support for the idea that defending can protect against some of the adverse effects of daily victimization on mood problems.

The first aim of the current study was to examine whether defending behaviours diminish adolescents' mood problems on days that they are being victimized. We focused on adolescents, which is valuable for various reasons. In adolescence, the desire to belong to the peer group is heightened as compared to in childhood (Dawes & Xie, 2014) and adolescents may be particularly sensitive to both negative (victimization) as well as positive peer experiences (being defended). Peer defending may be crucial in adolescent victimization instances because teachers have less oversight over what happens in the peer group (Laursen & Veenstra, 2021) and therefore may be less likely to intervene in bullying situations. Moreover, adolescents may be particularly dependent on their peers in solving or recovering from a bullying situation (Yeager et al., 2018) given that adult interventions are considered less effective in secondary as compared to elementary school (Johander et al., 2021). In adolescence, defending behaviours are less positively associated with popularity (Pouwels et al., 2019) than in childhood, which may reduce the likelihood that these behaviours are displayed. Therefore, it is important to gain insight into the prevalence of defending in adolescence and – especially – into the potential beneficial effects of being defended.

In examining the role of being defended in daily mood, we extended upon prior research by following a much larger sample ($n \approx 1600$ students) across a longer time span (up to 3 weeks). Such a large sample with sufficient within-person assessments is necessary to reliably estimate how the same individual feels across victimization experiences *with* and *without* being defended. Moreover, we assessed multiple mood indicators. With regard to negative mood, we focused on depressed mood and feelings of humiliation, as previous work has shown that negative social experiences trigger not only basic emotions (depressed mood, Izard, 2007), but also self-conscious emotions (feelings of humiliation; Lewis, 2000; Somerville et al., 2013). This distinction is also valuable as self-conscious emotions in response to negative peer experiences may particularly arise in adolescence (Somerville et al., 2013). We also examined positive mood because an absence of positive mood does not necessarily imply a negative mood, and vice versa (Reavis et al., 2015). Another way in which we extend upon previous work is by examining the role of being defended in daily cognitions, which we elaborate on below.

The role of being defended in victims' self-blame

Being defended may affect not only victims' mood but also their *cognitions*, and more specifically, their causal attributions. Following attribution theory (Weiner, 1985), victims make causal attributions to attempt to make sense of why they are victimized. These attributions can unfold along various causal dimensions: stability (is the cause of victimization stable or varying over time?), controllability (can the victim change the cause?), and locus (is the cause internal or external to the victim?). The current study focused on the *locus* in causal attributions, as this has received most attention in previous work linking victimization to psychological problems and cognitions (Huitsing et al., 2012). Specifically, we will focus on the extent to which students have an *internal locus*, i.e., blame themselves for the victimization. Self-blame is an esteem-related believe in personal deservingness (Janoff-Bulman, 1979) and may, therefore, particularly affect victims' psychological functioning. Indeed, previous work has shown that victims often blame themselves for victimization, which increases their psychological problems (Gibb & Alloy, 2006).

Although victims' self-blame cognitions can depend on contextual characteristics, such as the level of victimization in a classroom (Graham & Juvonen, 1998; Schacter & Juvonen, 2015), no study to date has considered the role of being defended (a *micro-contextual* characteristic) in victims' self-blame. In

applying attribution theory to the context of victimization, Graham and Juvonen (1998) have theorized that being defended during a victimization episode may provide "disconfirming evidence" which diminishes self-blame. That is, being defended may help victims build confidence that not everyone considers them worthless and hence, that they do not have to blame themselves for what happened to them. Another reason why defending may diminish self-blame is that defending behaviours are often directed at factors *external* to the victim: defending can be directed at bullies or may involve asking other peers for assistance in stopping the bully (Wang et al., 2023). Even when defending is directed at the victim, it can include assuring the victim that the bullying is not their fault. This potentially helps the victim to acknowledge that the bullying is an external problem – such as due to bully characteristics or classroom atmosphere (Graham & Juvonen, 1998) – and can buffer against self-blame. Therefore, the second aim of the current study was to test whether being defended reduces victims' self-blame.

The final aim of the current study was to examine whether being defended can benefit victims' mood by diminishing their self-blame (i.e., mediation). The attributional framework assumes a sequence in which cognitions (such as causal attributions) give rise to emotional states (Weiner, 1985). Hence, it is possible that being defended buffers against victims' mood problems at least in part through diminishing self-blame. In other words, on days when students are victimized *and* defended, they may be less likely to blame themselves, which in turn may diminish mood problems, as compared to on days when these students are victimized *but not* defended.

The current study

The first aim of this study was to examine the role of being defended in adolescents' negative mood (i.e., feelings of humiliation and depression) and positive mood, both at the within- and between-person level. We formulated three within-person hypotheses. We expected that: (1a) students report a more negative mood and less positive mood on days when they are victimized compared to days when they are not victimized, and (1b) students report a less negative mood and more positive mood on days when they are victimized *and* defended compared to days when they are victimized but *not* defended; yet (1c) students report a more negative mood and less positive mood on days when they are victimized and defended than on days when they are non-victimized.

We also formulated three between-person hypotheses to test the effectiveness of being defended on general levels of mood. We expected that: (2a) students who are victimized at least once across all observations report a more negative mood and less positive mood, than students who are not victimized across observations; and (2b) students who are at least once victimized and at least once defended across all observations report less negative mood and a more positive mood than students who are at least once victimized but never defended; yet (2c) students who are at least once victimized and defended across all observations report a more negative mood and less positive mood than students who are never victimized across observations (see Laninga-Wijnen, van den Berg, et al., 2023). Table 1 provides an overview of all hypotheses.

The second aim of this study was to test whether being defended related to victims' internal causal attributions (i.e., self-blame). We based our hypotheses on attribution theory applied to the victimization context (cf. Graham & Juvonen, 1998). At the within-person level, we expected that students report lower self-blame on days they are victimized *and* defended compared to on days when they are victimized but *not* defended (Hypothesis 3). At the between-person level, we expected that victims who are at least once defended across observations report less self-blame as compared to victims who are *not* defended across observations (Hypothesis 4).

The third aim was to examine whether the link between being defended and victims' mood is mediated through self-blame. At the within-person level, we hypothesized that on days that students are victimized and defended, they have lower self-blame and, in turn, fewer mood problems, compared to days when these same students are victimized and non-defended (Hypothesis 5). We tested this process concurrently (within the same day) and over time (victimization, being defended, and self-blame at day

TABLE 1 List of hypotheses to be tested.

Hypothesis nr	Within	Hypothesis nr	Between
Outcome: Daily mood			
1a	Students will report higher negative mood (greater depressed mood and humiliation) and lower positive mood on days when they are victimized compared to days when they are not victimized	2a	Students who are victimized at least once across observations will report a more negative mood and less positive mood across observations than students who are not victimized.
1b	Students will report a less negative mood and more positive mood on days when they are victimized *and* defended compared to days when they are victimized but *not* defended	2b	Students who are victimized and defended at least once across observations will report less negative mood and a more positive mood than students who are victimized but never defended
1c	Students will report a more negative mood and less positive mood on days when they are victimized and defended than on days when they are non-victimized	2c	Students who are victimized and defended at least once across the observations will report a more negative mood and less positive mood than students who are never victimized across observations
Outcome: Self-blame			
3	Students will report less self-blame on days when they are victimized *and* defended as compared to on days that they are victimized but *not* defended	4	Victims who are at least once defended across observations report less self-blame as compared to victims who are *never* defended across observations
Mediation: Being defended > Self-blame > Daily mood			
5	On days that students are victimized *and* defended, they will report diminished self-blame, which in turn reduces negative mood and promotes positive mood, as compared to on days when students are victimized *and not* defended[a]	6	Students who are victimized *and* defended at least once across observations, may have a lower self-blame, and therefore a less negative and more positive mood, as compared to students who are at least once victimized but *never* defended across observations

[a]We explored whether this mediation effect was also present longitudinally.

1, mood at day 2). The over-time analysis was exploratory and was meant to disentangle the temporal precedence of effects to allow stronger conclusions regarding mediation effects. At the between-person level, we expected that students who are victimized *and* defended at least once across observations have a lower self-blame, and, in turn, fewer mood problems, as compared to students who are victimized and *never* defended across observations (Hypothesis 6) This hypothesis could only be analysed concurrently.

In all analyses, we controlled for gender. We also explored potential moderating effects of gender. Research has shown that girls feel more emotionally distressed when facing negative peer interactions than boys do (Vuijk et al., 2007). Moreover, there is some cross-sectional evidence that victimized boys, but not girls, tend to feel less depressed when they received support from friends (Schacter & Juvonen, 2020). In additional exploratory analyses, we tested for the heterogeneous nature of defending behaviours. All previously mentioned studies have treated peer defending as a one-dimensional construct, whereas, in reality, it can be enacted in different ways (i.e., victim-directed

and bully-directed; Reijntjes et al., 2016), which may have diverging effects on victims' daily mood and self-blame. For instance, it is possible that bully-directed defending more strongly diminishes self-blame than victim-directed defending, because bully-directed behaviours could signal to victims that their peers consider the bullies to be blamed for the situation. Moreover, victim-directed defending behaviours are primarily directed at diminishing negative feelings. Thus, it is possible that these defending behaviours particularly matter for victims' negative mood. Yet, given the lack of existing evidence and strong theory, we did not formulate any hypotheses on distinct effects. Exploring the relative effectiveness of these two types of defending in diminishing victims' mood problems and self-blame is essential for understanding which defending type(s) should be encouraged in anti-bullying programs.

METHODS

Participants and procedure

Participants were derived from SOLID DAILY; a subproject of the SOLID project that aims to identify Success factors that Optimize the Long-term Impact of Defending. Participants of SOLID DAILY included 1669 Finnish 7th to 9th grade students. Cohort 1 (data collected in January–February 2023) consisted of 439 students from 16 schools, and cohort 2 (data collected in January–February 2024) consisted of 1230 students from another set of 15 schools. Students were on average $M = 14.45$ years of age ($SD = .87$, range = 13.04–18.00). A total of 927 students identified as girls and 648 identified as boys. The number of participating students per school varied from 2 to 172.

Schools were recruited for the general SOLID project and were told that the SOLID project consisted of two sub-projects: SOLID SURVEY (for more information, see https://osf.io/nghwm/) and SOLID DAILY. A register of basic education schools in Finland from 2020 was retrieved online from Statistics Finland, and the headmasters on this list were sent an invitation email to participate in the project. Schools were promised a report of research findings and anti-bullying intervention training as an incentive to participate. They were also enrolled in a lottery for a monetary reward (2000 euro) for indicating whether they wanted to participate or not.

Parents and students of the participating school were informed about the SOLID project and asked to provide active written or electronic consent to participate in the project and archive the obtained data. Only students over 13 years of age were invited to participate in the subproject SOLID DAILY following Finnish law. Out of the 8261 invited students (n cohort 1 = 2855; n cohort 2 = 5406), a total of 3489 (42%) received active consent from parents to participate in SOLID DAILY ($n = 643$ for cohort 1, and $n = 2846$ for cohort 2).

SOLID DAILY took place over a three-week period in January–February (for cohort 1 in 2023, for cohort 2 in 2024). In the week before the data collection, teachers were carefully instructed on how they could assist students with installing the app Avicenna (https://ethicadata.com/) on their mobile phones. From that week onwards, students could register for the study with an email address that was designed by researchers (this prevented that students would fill in their own gmail address that could include their name; hence assuring pseudonimity). Confidentiality of students' answers was guaranteed, and they were told that they could opt-out at any time, to prevent the ethical issue that adolescents would feel pressure to participate. A total of 2182 students ($n_{cohort1} = 497$ and $n_{cohort2} = 1685$) registered in the Avicenna system, of which 48 students declined participation. Thus, we ended up with a total of 2134 registered participants.

We aimed to collect data from students across 10 consecutive school days. We aimed for 10 days to make sure that we would have a sufficient amount of days to capture some victimization experiences (based on previous experience, see Pouwels et al., 2016), while preventing the potential ethical issue that some participants would have to report about negative feelings or experiences on too many days. Participants were asked to fill in a 2–3 min questionnaire as soon as their school day ended (at 3 p.m.) via

the Avicenna app (EthicaData, 2022). Students had time to fill in the questionnaire until 11.59 p.m. that day, and they received in-app reminders at 5:00, 7:00, and 8:00 p.m. to do so. Students reported daily on positive and negative mood, their bullying victimization experiences, the presence of bystanders during the victimization, being defended by bystanders, and causal attributions. The questionnaire could flow in varying ways depending on participants' responses and was designed so that participants always received an almost equal number of 30 questions, irrespective of their answers. A complete overview of all items and the conditions under which students receive them can be found on (https://osf.io/nghwm/). In Appendix S1 we listed the items used for our study. At the end of each questionnaire, students were told that if they wanted to talk about things brought up in the questionnaire, they could always ask adults at school, such as a teacher or social worker. We also listed the phone number of the Children and Adolescents line, which is free of charge, to address the potential ethical issue that the questionnaire may trigger or raise increased awareness of one's (prolonged) negative daily mood.

Students who completed five questionnaires within one school week were enrolled in a raffle to win a tablet computer. Students who filled in all 10 questionnaires across the 2 weeks doubled their winning chances. Following recommendations for intensive longitudinal studies (see van Roekel et al., 2019), in a third week, we enabled students to "catch up" if they had missed one or more questionnaire. Some students had filled in 10 questionnaires but still wanted to participate in these extra days (that were actually solely meant for students who wanted to "catch up"). Therefore, some students even voluntarily filled in the questionnaire 15 times despite being instructed that they did not have to do that. Students could write something in the comments to the researchers, and many of them indicated that they liked participating in the questionnaire and thought that the questions asked were very relevant.

A total of 1669 students (78.2% of the 2134 who registered and wanted to participate) filled in at least one questionnaire. From the total 20,389 surveys issued to participants, 12,366 (61%) were at least partially filled in. On average, participants filled in 7.41 surveys ($SD = 4.20$). Appendix S2 (Table S1) provides an overview of the number of (partially) filled-in questionnaires.

The study was approved by the Ethical Board of the University of Turku in Finland. The data-collection procedure of SOLID DAILY was pre-registered (https://osf.io/nghwm/). The current study was submitted as a registered report and pre-registered (https://osf.io/fgmbh) before any data collection took place. A full overview of all measures administered in the study can be found in the publicly available codebook (https://osf.io/nghwm/). All necessary deviations from part I of our registered report regarding our method have been transparently documented in Appendix S3.

Measures

Victimization

Each day, students were asked whether they had gone to school that day, and if so, they reported on their victimization experiences. They were asked "Have you been bullied at school today in such a way that other students…" followed by five items: "have spread gossip about you?", "were name-calling or saying bad things to you", "excluded you from activities or discussions", "pushed, hit, or kicked you", and "have taken or messed up your stuff" (Morrow et al., 2019; Solberg & Olweus, 2003). Students could respond on a 5-point Likert scale, varying from 1 = not at all, 2 = a little bit, 3 = somewhat, 4 = pretty much, 5 = very much. Within-person reliability of these five items was $\omega = .78$, and between-person reliability was $\omega = .77$. For the main analyses, we created a within-person dummy variable in which students received a "1" if they were a *non-victim* on a certain day (i.e., a score of "0" on all victimization items) and a "0" if they indicated on at least one of the items that they were victimized at least a little bit that day. Thus, being a victim was the reference category. We also created a between-person dummy variable in which students received a "1" if they were *never victimized* across all observations and a "0" if they were at least once victimized across all observations. For descriptive purposes, we calculated the within- and between-person average of victimization items.

Having witnesses

Only students who had indicated on at least one of the victimization items that they had been bullied were asked whether their fellow students had seen or heard what happened (i.e., witnesses). They could respond with either yes (1) or no (0) to this question (cf. Nishina, 2012). For our analyses, we transformed this item into a within-person dummy in which students received a "1" on days they were victimized *without* witnesses – versus the rest who received a "0". We also created a between-person dummy variable in which students received a "1" if they never had witnesses across observations versus the rest who received a "0".

Being defended

On days that victims reported that there were witnesses, they were asked to indicate what these witnesses did. In total, eight items about defending behaviours were administered, including four bully-directed defending items (e.g., "they tried to push the bully away", "they told the bully to stop"), three victim-directed defending items (e.g., "they tried to comfort me", "they did something nice with me to distract me from what happened"), and one item about going to the teacher ("they asked a teacher for help"). The items assessing defending were based on the participant role scale (Salmivalli et al., 1996) and prior work (see Jones et al., 2015). In contrast to our pre-registration (see Appendix S3), we decided to focus on the bully- and victim-directed items and hence to exclude the item about reporting to the teacher, as recent work has shown that this should be considered as a separate type of defending (Wang et al., 2023). In exploratory analyses, we ran the analyses with the teacher item on our final models.

Victimized students could answer all "being defended" items with either no (0) or yes (1). For general defending, we created a within-person dummy variable for each daily assessment, which indicated whether students were *victimized but not defended on any item* (receiving a "1") versus the rest (who received a "0"). We also created a between-person dummy variable for *never having defenders*: students received a "1" if they never had defenders across observations versus the rest who received a "0". We took a similar approach for calculating within- and between-person dummy variables for victim- and bully-directed defending. For descriptive purposes, we also created within- and between-person sum scores of the items for defending. Again, we did this for defending in general as well as for victim- and bully-directed defending specifically.

Daily negative and positive mood

Daily mood was assessed using both high- and low-arousal items, partially derived from the Positive and Negative Affect Scale (PANAS, Watson & Clark, 1994) and partially based on previous work on this topic (Nishina, 2012; Reavis et al., 2015). The PANAS has been adapted for daily reporting in several previous studies involving adolescents (Silk et al., 2003). Students were asked to rate on a five-point Likert scale, ranging from 1 (= not at all) to 5 (= very much), to what extent they felt certain emotions throughout their day. Negative mood was captured with items assessing depressed mood (*sad*, *unhappy*, *and lonely*) and feelings of humiliation (*embarrassed*, *insecure*, and *ashamed*). The emotions for positive mood included *relaxed*, *cheerful* and *content* (cf. Reavis et al., 2015).

Multi-level confirmatory factor analysis on all nine daily mood items indicated that the three factors (positive mood, humiliation, depressed mood) could be extracted both at the within- and between-level, with good model fit (CFI = .952, TLI = .936, RMSEA = .048, $SRMR_{within}$ = .032, $SRMR_{between}$ = .082). Within-person reliability estimates were ω = .61 for positive mood, ω = .70 for humiliation, and ω = .74 for depressed mood. Between-person reliability estimates were ω = .87 for positive mood, ω = .81 for humiliation, and ω = .85 for depressed mood. We averaged the items and created three scales – for positive mood, depressed mood, and feelings of humiliation respectively. We created lagged scores reflecting

students' daily mood on the previous assessment day. These scores were introduced as covariates in exploratory analyses.

Self-blame

Three items assessed self-blame from students who had indicated that they had been victimized that day. The sentence "I was bullied today because…" was followed by three self-blaming reasons "I am different from the bullies", "I am not as cool as the bullies", and "I look different from others" (Schacter & Juvonen, 2015). Students could rate on a four-point Likert scale to what extent they considered each statement true (1 = not true at all, 4 = totally true). In the sample of victims, multi-level confirmatory factor analysis indicates that the three items loaded on one factor with appropriate fit (CFI = .989, TLI = .968, RMSEA = .069, $SRMR_{within}$ = .029, $SRMR_{between}$ = .030). Between- and within-person reliability estimates were ω = .72 and ω = .84. Therefore, the items were averaged to create a measure for self-blame.

Gender

Participants' gender was based on their answers during the SOLID SURVEY data collection. This was based on the item "how do you identify" based on which students could pick "girl", "boy", or "other". We set the option "other" as missing due to their low percentage (<1.0%). Girls were set as the reference category.

Transparancy and open science

This is the first daily diary study stemming from a project (SOLID) for which the design and sampling have been pre-registered (https://osf.io/nghwm/). This specific study was pre-registered as well in the form of a registered report before any data collection took place (https://osf.io/zh4w9). The approved Stage I document can be retrieved from: https://osf.io/d58bp. Any deviations from our pre-registered plan have been transparently documented in Appendix S3. All meta-data and syntaxes necessary to replicate this study are made available on (https://osf.io/g8ya3). Data is available upon request and will be publicly provided once the full SOLID project has ended. We refrained from using AI in our writing process.

Analytic strategy

Data cleaning and descriptive analyses were performed in R, using the dplyr (Wickham et al., 2023) and misty packages (Yanagida, 2024). To test our hypotheses, we analysed multi-level models in Mplus 8.6, and we ran them for each mood outcome separately. We person-mean centered within-person categorical and continuous variables (Level 1) to tease apart within- and between-person effects (Yaremych et al., 2021).

Does being defended predict victims' mood problems?

To examine the role of being defended in victims' daily mood, we used a model-building approach. In Models 1.1 (the intercept only models for each mood outcome separately), we estimated the relative amount of within- and between person variance in the positive and negative mood variables. In Models 1.2, we determined the within- and between-person associations of being victimized and different types

of mood (so for each type of mood we ran a Model 1.2). At the within-person level (level 1), one dummy variable assessing "being *non*-victimized" (1 = non-victimized on that day and 0 = victimized on that day) was included as a predictor in the model. At the between-person level, gender (0 = girl, 1 = boy) and a dummy assessing being *never victimized* were included (1 = never victimized across observations; 0 = being victimized at least once across all observations). This model allowed us to test the hypotheses that students report more mood problems on days when they are victimized compared to days when they are not victimized (Hypothesis 1a) and that students who were never victimized across observations report fewer mood problems as compared to students who were victimized at least once (Hypothesis 2a).

In Models 1.3 (for each mood indicator separately), we estimated the within-person effect of being defended on mood by adding two within-person dummies: one for having no witnesses on a certain day (having *no* witnesses = 1 vs. the rest = 0) and one for not being defended on a certain day (being *non*-defended = 1 vs. the rest = 0). The addition of the second and third dummy variables changed the interpretation of the effects of the dummy variables that were originally included in Model 1.2, because these variables became conditional on each other. Dummy 1 (being *non*-victimized) now reflected the effect of being non-victimized versus being a witnessed defended victim on a particular day. Dummy 2 (having *no* witnesses) reflected the effect of being victimized without witnesses versus being a witnessed defended victim on a particular day. Dummy 3 (being *non*-defended) reflected the effect of being a witnessed non-defended victim versus being a witnessed defended victim on a particular day. Thus, these three dummies together enabled us to test Hypotheses 1b and 1c (Table 1) by comparing students' mood on days that they were witnessed defended victims versus on days that they were (1) non-victimized, (2) victimized without witnesses, and (3) witnessed undefended victims.

At the between-level of Model 1.3, we added two comparable dummies: one for never having witnesses across observations (never witnesses = 1, vs. the rest = 0) and one for never being defended across observations (never being defended = 1, vs. the rest = 0). Again, the three dummies at the between-level were now conditional on each other, meaning that between-person dummy 1 (*never* victimized) reflected the effect of being never victimized versus being at least once victimized *and* being at least once defended by witnesses. Dummy 2 (*never* having witnesses) reflected the effect of being victimized at least once but never having witnesses versus being victimized at least once *and* being defended at least once by witnesses. Dummy 3 (*never* defended) enabled to compare students who (1) were at least once victimized and at least had once witnesses but who never were defended, versus students who (2) were at least once victimized and at least once had witnesses who defended them across observations. Together, these dummy variables enabled us to test the hypotheses about the within- and between-person effects of being defended on victims' mood (Hypotheses 2b and 2c, Table 1).

In both Models 1.2 and 1.3, we tested whether within-person predictors should be included as random or fixed effects by comparing Deviance Information Criteria (DIC) between models, with lower DIC indicating a better model. We also evaluated whether Models 1.3 explained additional variance in students' mood compared to Models 1.2. Next, in Models 1.4, we explored the potential moderating effects of gender by incorporating cross-level interaction terms between gender and all within-person dummy variables. In Model 1.5, we explored the potential moderating effects of gender by incorporating interaction terms with the between-person dummy variables.

Does being defended predict victims' self-blame?

The second aim of this study was to examine the role of being defended in victims' self-blame at the within- and between-person level. For these analyses, we selected a subsample of students who were victimized at least three times across observations ($n = 144$), because students were only asked about their self-blame when they were victimized. This dataset of repeated victims included 1778 observations. In Model 2.1 (the intercept only model) we determined the relative amount of within- and

between-person variance in self-blame. In Model 2.2, we added the within-person dummy variables "being *non*-defended" and "having *no* witnesses". At the between-person level, we added the dummy variables "*never* defended", "*never* having witnesses", and gender. Model 2.2 enabled us to test Hypotheses 3 and 4 (Table 1). In Model 2.3, we explored the potential moderating effects of gender by incorporating interaction terms between gender and all between-person dummy variables.

Does diminished self-blame mediate the link between being defended and daily mood?

The third aim of this study was to explore the mediating role of self-blame in the link between being defended and mood (Hypothesis 5 and 6). This was done in Models 3.1 (again, for each mood indicator separately), in which both mood and self-blame were included as outcomes of being defended and in which self-blame was entered as a predictor of mood. Both within- and between-person mediation effects were obtained by computing model constraints in which we quantified the product of the coefficients *a* (the effect of being defended on self-blame) and *b* (the effect of self-blame on mood, adjusted for the effect of being defended). These model constraints allowed us to evaluate the significance and Bayesian confidence intervals of indirect effects and, hence, to test Hypotheses 5 and 6 (Table 1). In Models 3.2, we estimated longitudinal models (victimization, being defended, and self-blame assessed on day 1, mood assessed on day 2) to explore longitudinal mediation effects at the within-person level.

Model estimation procedures

Across all models, we applied Bayesian estimation (Appendix S3). We used the Gibbs algorithm for models including random effects, which is an MCMC technique that iteratively draws on a sequence of parameters, variables, and missing observations to construct the posterior distribution based on the observed data and specifications of the parameters (Asparouhov & Muthén, 2010). In Bayesian estimation, missing values are predicted at each iteration of the estimation process based on the model specification, the parameter estimates obtained from the previous iteration, and the observed data (Winter & Depaoli, 2022). The Gelman–Rubin method was used to determine the convergence of Bayesian estimates, which compares the variability of parameter estimates both within and between chains (Gelman, 2004). A minimum of 10,000 and maximum of 50,000 was specified and priors were defined based on a first analysis with a minimum of 1000 iterations. All models converged within 50,000 iterations with a PSR (Potential Scale Reduction) close to 1.00. Trace plots were inspected to check parameter-specific convergence, with plots resembling "fat caterpillars" indicating good convergence.

Across all models, we considered retrieved parameters as significant and interpreted the effect sizes if Bayesian *p*-values were smaller than .05 and if the Credibility Intervals did not contain 0. Effect sizes were computed for each outcome based on the STDYX standardization for continuous predictors and STDY standardization for categorical predictors, and we used the criteria of Gignac and Szodorai (2016) to interpret the size of the effects.

Outliers

We checked whether participants had averages lower or higher than two standard deviations of the within- *and* between-person mean of mood and self-blame. We ran all models described above in exploratory analyses while excluding these outliers.

RESULTS

Descriptive results

Figure 1 provides a flow chart indicating the prevalence of victimization, having witnesses, and being defended in general as well as in bully- and victim-directed ways. Prevalences are reported both at the within-person (i.e., observations) and a between-person (i.e., individuals) level. On 11,023 out of the 12,366 observations, students had gone to school and hence were asked about being bullied and defended. In 1329 out of these 11,023 observations (12.1%), participants indicated they had been victimized at school that day. These 1329 observations of bullying were nested in 654 participants, of whom 386 were bullied once, 124 were bullied twice, and 144 were bullied at least three times across observations (on average, there were 7 observations per student). Most of the time, victims indicated that they were bullied 'a little bit', given the average of bullying of $M = 1.08$ (range 1.00–5.00; Table 2). Most victimization occurred without witnesses (on 851 out of 1329 observations; 64.0%), and being defended occurred in almost half of the observations with witnesses. Specifically, victims were defended in 210 out of 471 victimization episodes with witnesses (44.6%). These 210 observations were nested in 162 students – among them, 132 were defended once, 20 were defended twice, and 10 were defended three or more times. In 114 situations (nested in 71 students), victims were defended in both bully- and victim-directed ways.

Across the 210 days on which students were victimized *and* defended, on average, 3.45 (range = 1–9) defending behaviours were reported. Thus, students were often being defended in multiple ways simultaneously. In Figure S1 (Appendix S4), we display the item-specific prevalences of being defended across observations (left side) and individuals (right side). The most frequently reported defending behaviour across observations was that fellow students did something nice with the victim to distract them from what happened (i.e., in 122 out of the 471 bullying situations with witnesses present, thus 25.9%). Across individuals, most victims mentioned at least once that a fellow student tried to stop the bully (45.1%).

Table 2 displays the averages of daily mood, self-blame, and victimization across varying observations (upper part) and individuals (lower part). Students reported lowest levels of victimization on days that they were victimized *without* witnesses. Furthermore, some interesting patterns emerged for positive and depressed mood, even though these should be interpreted with caution as we did not test for significance of differences – this was something we planned to do in our main analyses. On days that students were victimized, they had most mood problems (lowest positive and highest depressed mood) if they had witnesses who did *not* defend them, and least mood problems if they had witnesses who defended them. They scored in between on mood problems on days that they were victimized without witnesses. Feelings of

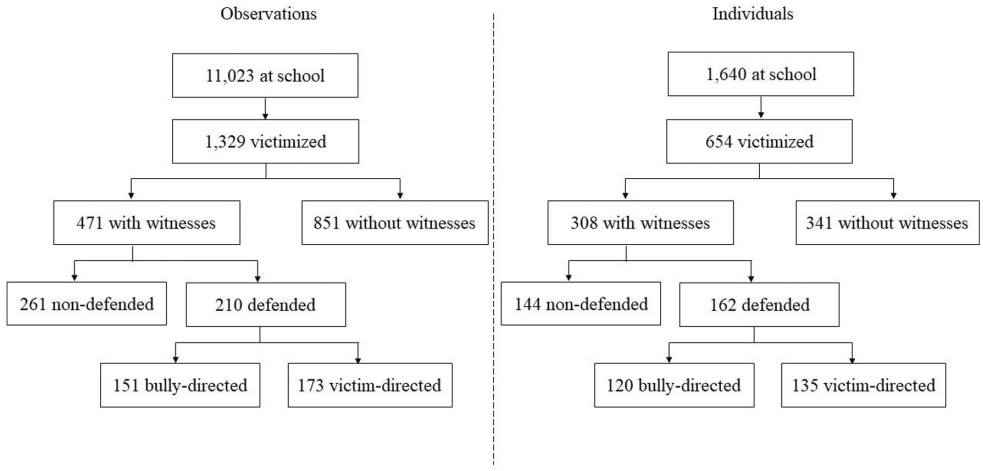

FIGURE 1 Flow chart of victimization, having witnesses, and being defended across observations and individuals.

TABLE 2 Averages and standard deviations of daily mood, victimization, and demographic information.

	Positive, *M* (*SD*)	Sad, *M* (*SD*)	Humiliation, *M* (*SD*)	Self-blame, *M* (*SD*)	Victimization, *M* (*SD*)	Age, *M* (*SD*)	Boy, %
Observations							
Non-victimized (*n* = 9691)	3.25 (.95)	1.56 (.73)	1.63 (.77)	–	1.00 (.00)		
Victims without witnesses (*n* = 851)	2.81 (.84)	2.30 (.97)	2.27 (1.00)	2.08 (.95)	1.59 (.58)		
General defending							
Defended victim (*n* = 210)	2.99 (.95)	2.15 (.93)	2.18 (.98)	2.11 (.91)	1.77 (.73)		
Non-defended victim (*n* = 258)	2.66 (.86)	2.41 (1.08)	2.19 (1.00)	2.20 (.95)	1.75 (.73)		
Bully-directed defending							
Defended victim (*n* = 151)	3.03 (.99)	2.11 (.96)	2.23 (1.07)	2.02 (.92)	1.82 (.76)		
Non-defended victim (*n* = 317)	2.69 (.86)	2.38 (1.05)	2.17 (.95)	2.22 (.93)	1.73 (.72)		
Victim-directed defending							
Defended victim (*n* = 173)	3.06 (.92)	2.19 (.96)	2.19 (.97)	2.15 (.92)	1.75 (.73)		
Non-defended victim (*n* = 295)	2.65 (.88)	2.36 (1.06)	2.18 (1.01)	2.16 (.94)	1.76 (.74)		
Total (*n* = 12,366)	3.18 (.96)	1.68 (.83)	1.70 (.84)	2.13 (.94)	1.08 (.31)		
Individuals							
Non-victimized (*n* = 989)	3.29 (.80)	1.53 (.58)	1.58 (.63)	–	1.00 (.00)	14.50 (.85)	44.6%
Victims without witnesses (*n* = 341)	3.03 (.75)	1.99 (.72)	1.97 (.76)	1.89 (.87)	1.22 (.35)	14.50 (.91)	30.6%
General defending							
Defended victim (*n* = 162)	3.04 (.75)	1.94 (.70)	1.94 (.76)	2.06 (.83)	1.34 (.46)	14.20 (.94)	38.0%
Non-defended victim (*n* = 144)	2.87 (.71)	2.02 (.77)	1.96 (.78)	1.99 (.82)	1.35 (.53)	14.40 (.85)	42.1%
Bully-directed defending							
Defended victim (*n* = 119)	3.08 (.77)	1.93 (.73)	1.97 (.81)	1.99 (.81)	1.37 (.50)	14.20 (.91)	46.8%
Non-defended victim (*n* = 186)	2.89 (.71)	2.01 (.74)	1.94 (.74)	2.05 (.84)	1.33 (.49)	14.40 (.88)	35.9%
Victim-directed defending							
Defended victim (*n* = 134)	3.07 (.74)	1.98 (.72)	1.98 (.78)	2.12 (.86)	1.37 (.49)	14.20 (.89)	34.4%
Non-defended victim (*n* = 171)	2.88 (.73)	1.98 (.75)	1.93 (.76)	1.95 (.79)	1.33 (.50)	14.40 (.90)	44.4%
Total (*n* = 1329)	3.17 (.79)	1.71 (.68)	1.73 (.71)	1.96 (.85)	1.11 (.30)	14.45 (.87)	38.8%

Note: Averages at the individual level represent person-mean scores.

humiliation were lower on days that students were victimized, but did not seem to differ strongly depending on whether there were witnesses present and whether students were defended or not. In Table S2 (Appendix S5), we reported within- and between-person correlations between our continuous variables.

Intercept only models

Before testing our hypotheses, we ran intercept only models for all three mood indicators (Models 1.1) and self-blame (Model 2.1). Intraclass correlations varied from .53 to .61, indicating that a bit more than half of the variance in mood and self-blame was due to differences between persons, and the remaining variance was due to differences within persons or measurement error.

Model comparisons

As pre-registered, before testing our hypotheses in Models 1.2 (which assess the role of being victimized on mood) and 1.3 (which assess the role of being defended on mood), we compared whether

within-person dummies should be included as fixed or random parameters. We made decisions based on the DIC, with lower DIC indicating a better model fit. For Models 1.2 *and* 1.3, for all mood indicators and all types of being defended, the DIC was lowest if within-person dummy variables were set as random. Furthermore, across mood indicators, Models 1.3 explained up to 10% of additional variance compared to Models 1.2. Thus, for all mood indicators, we interpreted Models 1.3 to test our hypotheses on the role of being defended. We further elaborate on the model comparisons in Appendix S6 (Table S3).

Does being victimized relate to mood problems?

In Models 1.2, we examined how victimization was related to adolescents' mood (H1a & H2a, Table 1). In line with Hypothesis 1a, findings indicated that students had a less positive mood ($\beta_{positive} = .057$, small effect; Gignac & Szodorai, 2016) and more negative mood ($\beta_{depressed} = -.174$, $\beta_{humiliation} = -.168$, small to medium effects) on days that they had been victimized as compared to on days that they had not been victimized (Table 3). Moreover, in line with Hypothesis 2a, students who were at least once victimized across observations had – on average – a less positive mood ($\beta_{positive} = .169$) and more negative mood than students who were never victimized ($\beta_{depressed} = -.345$, $\beta_{humiliation} = -.261$). Regarding gender, boys experienced fewer mood problems than girls. The effects at the between-person were medium to large (Gignac & Szodorai, 2016).

Exploratory analyses: the role of gender

Exploratory analyses indicated that *only* for feelings of humiliation, there was a significant interaction between victimization and gender at the between-person level. This interaction indicated that being victimized at least once across observations was less strongly related to humiliation for boys than for girls ($\beta = -.117$). The other interactions were insignificant at the within- and between-person level (Appendix S8: Table S5). Thus, the role of being victimized on students' mood did not differ clearly between boys and girls.

TABLE 3 The role of victimization in within- and between-person differences in daily mood (models 1.2).

	Positive mood			Depressed mood			Humiliation		
	B (*SD*)	*p*	*β*	*B* (*SD*)	*p*	*β*	*B* (*SD*)	*p*	*β*
Intercept	2.892 (.033)			2.072 (.026)			2.088 (.027)		
Within-person									
Non-victimized (H1a)	.140 (.030)	<.001	.057	−.440 (.038)	<.001	−.174	−.384 (.035)	<.001	−.168
Within-person variance	.336			.290			.240		
R^2 within	.030			.104			.099		
Between-person									
Gender (0 = girl)	.330 (.039)	<.001	.218	−.284 (.032)	<.001	−.228	−.385 (.033)	<.001	−.287
Never victimized (H2a)	.257 (.040)	<.001	.169	−.434 (.031)	<.001	−.345	−.354 (.033)	<.001	−.261
Between-person variance	.507			.308			.367		
R2 between	.084			.186			.165		

Note: *SD*s are posterior *SD*. H1a = parameter tests Hypothesis 1a, and H2a = parameter tests Hypothesis 2a. Analyses were done on $n = 1669$ students, $n = 20{,}352$ observations.

Does being defended relate to mood problems?

In Models 1.3, we examined how being defended was related to each mood indicator separately, both at the within-person level (H1b, H1c, Table 1) and the between-person level (H2b, H2c, Table 1). We had hypothesized that students would report fewer mood problems on days they were victimized and defended than on days that they were victimized but *non*-defended (Hypothesis 1b). Partially in line with this hypothesis, findings indicate that students had a more *depressed mood* on days when they were victimized but *non*-defended as compared to on days when they were victimized *and* defended ($\beta_{depressed} = .139$, Table 4). Exploratory analyses showed that these effects were similar across various types of defending (Appendix S7: Table S4). The effects were medium to large in size and being defended explained about 10% additional variance in daily variations in depressed mood over and above the effect of being victimized. Furthermore, being defended in general was unrelated to *positive mood*, even though there seemed to be a trend ($\beta_{positive} = -.034$, $p = .066$, Table 4). Exploratory analyses indicated that the effects of being defended in bully- and victim-directed ways on positive mood were significant ($\beta = -.043$ and $\beta = -.051$, respectively; Appendix S7: Table S4), but small in size: they explained only about 1.0% additional variance in positive mood over and above of the effect of being victimized. Lastly, in contrast to our hypothesis, there was no link between being defended and humiliation ($\beta_{humiliation} = .051$). These non-significant findings were consistent across the two forms of defending behaviour.

In Models 1.3, we also tested whether students would have more mood problems on days that they were victimized *and* defended as compared to on days that they were non-victimized (Hypothesis 1c).

TABLE 4 The role of general defending in within- and between person differences in mood (models 1.3).

	Positive mood			Depressed mood			Humiliation		
	***B* (*SD*)**	***p***	***β***	***B* (*SD*)**	***p***	***β***	***B* (*SD*)**	***p***	***β***
Intercept	2.927 (.061)			2.025 (.048)			2.071 (.052)		
Within-person									
Non-victimized (H1c)	.103 (.057)	.068	.039	−.324 (.055)	<.001	−.127	−.333 (.051)	<.001	−.144
No witnesses	−.027 (.060)	.662	−.013	.022 (.061)	.716	.005	.013 (.054)	.814	.004
Non-defended (H1b)	−.155 (.087)	.066	−.034	.818 (.213)	.002	.139	.263 (.216)	.266	.051
Within-person variance	.332			.268			.227		
R^2 within	.040			.256			.209		
Between-person									
Gender (0 = girl)	.339 (.039)	<.001	.225	−.290 (.032)	<.001	−.232	−.390 (.034)	<.001	−.289
Never victimized (H2c)	.218 (.064)	.002	.143	−.387 (.050)	<.001	−.308	−.334 (.054)	<.001	−.246
Never witnesses	.010 (.072)	.882	.006	.014 (.057)	.804	.009	.008 (.062)	.904	.005
Never defended (H2b)	−.200 (.086)	.022	−.076	.154 (.067)	.022	.071	.051 (.074)	.476	.022
Between-person variance	.505			.308			.370		
R^2 between	.092			.188			.165		

Note: *SD*s are posterior *SD*s. H1c and H1b are parameters to test Hypothesis 1b and 1c, and H2b and H2c are parameters to test Hypothesis 2b and 2c. Analyses were conducted on $n = 1669$ students, $n = 20{,}352$ observations.

Indeed, students had more mood problems on days that they were victimized and defended as compared to on days that they were *non*-victimized ($\beta_{depressed} = -.127$, and $\beta_{humiliation} = -.144$). Effects were small to medium in size. Yet, no significant effects emerged for positive mood. Similar effects emerged for specific types of defending (Appendix S7: Table S4).

At the between-person level Models 1.3 indicated that in line with Hypothesis 2b, students who were victimized at least once across observations but who were never defended had a *less* positive mood ($\beta_{positive} = -.076$, Table 4) and a *more* depressed mood ($\beta_{depressed} = .071$) than students who were victimized *and* defended at least once. However, the effects were small, and no significant effect emerged for humiliation ($\beta_{humiliation} = .022$). Furthermore, consistent with Hypothesis 2c (Table 1), students who were never victimized across observations had a more positive ($\beta_{positive} = .143$), less depressed mood ($\beta_{depressed} = -.308$), *and* lower feelings of humiliation ($\beta_{humiliation} = -.246$) as compared to students who were at least once victimized but also at least once defended. Results were comparable across types of being defended, with typical to medium effect sizes.

Even though the within-person dummy of "no witnesses" was only included as a control effect, it is interesting that across outcomes, students' mood did not differ between (1) days that they were victimized without witnesses and (2) days that they were victimized and defended. No effects emerged for the between-person dummy of "never witnesses" either. Furthermore, after including defending as predictor, boys still experienced fewer mood problems than girls.

Exploratory analyses: the role of gender

In Models 1.4 and 1.5, we explored interactions with gender because boys may react differently to being defended than girls. However, none of these interaction effects were significant (Appendix S8: Table S6). Interaction effects of gender were also non-significant for specific types of being defended (Appendix S8: Table S7). Thus, boys did not seem to react in different ways to being defended as compared to girls.

Does being defended relate to victims' self-blame?

In Model 2.2 we examined whether being defended diminished daily self-blame (Hypothesis 3 and 4, Table 1) in a subsample of $n = 144$ repeated victims. Analyses indicated that students had a somewhat lower self-blame on days that they were victimized and defended as compared to on days they were victimized but *not* defended (Appendix S9: Table S8). The effect was small ($\beta = .084$). A comparable effect was retrieved for bully-directed defending while no effect emerged for victim-directed defending. At the between-person level, students who were at least once victimized *and* defended did not differ in self-blame from students who were at least once victimized but *not* defended, which contrasts with Hypothesis 4. Model 2.2 explained about 1.0% of the daily variations of self-blame among repeated victims, indicating small effects. Gender was unrelated to self-blame among repeated victims (Appendix S9: Table S8).

Exploratory analyses: the role of gender

In Model 2.3, we explored whether gender moderated the link between being never defended and self-blame. These effects were insignificant (Appendix S9: Table S9).

Does diminished self-blame mediate the link between being defended and daily mood?

Cross-sectional mediation models on the sample of repeated victims indicated that the within-person link between general defending and humiliation was mediated by self-blame (Table 5). Specifically, on days that students were victimized but *not* defended, they had higher self-blame, which, in turn, related to stronger feelings of humiliation ($B_{indirect}$ = .021, CI = .002; .051), as compared to on days that students were victimized *and* defended. The direct link between being defended and humiliation was non-significant (β = .006), indicating that this was a full indirect effect. The model explained 5.8% in within-person variations in humiliation and .8% in within-person variations in self-blame. Comparable but non-significant patterns emerged for indirect effects of being defended via self-blame on positive mood (B = −.012, CI = −.036; .001) and depressed mood (B = .013, CI = −.001; .040). Findings were consistent across specific types of being defended, except for the indirect effect of being defended in victim-directed ways on humiliation through self-blame, which was non-significant (Appendix S10: Table S10). Thus, the findings partially align with Hypothesis 5. In contrast to Hypothesis 6, across types of being defended and mood indicators, there was no between-person indirect link between being defended and daily mood through self-blame (see "Mediation effects between", Table 5).

In exploratory analyses, we tested these mediation effects longitudinally, by examining whether being victimized and (non-)defended predicted self-blame on a certain day and whether this, in turn, would predict mood the next day. No significant effects were detected in these analyses (https://osf.io/g8ya3).

Exploratory analyses

We planned to conduct exploratory analyses by excluding within- and between-person outliers. However, Figure S2 (Appendix S11), indicates that no outliers exceeded two *SD* lower or higher than the within- or between-person averages. Therefore, we refrained from doing outlier-based exploratory analysis. Nevertheless, we conducted several other exploratory analyses.

First, we re-ran Models 1.3, 2.2, and cross-sectional mediation models (Models 3.1) for general defending while *including* the item of "asking help from the teacher", consistent to our pre-registered analyses. All effects remained the same except for the direct effect of being defended in general on self-blame which became a trend (β = .077, p = .076). The mediation effect of being defended on humiliation via self-blame remained significant (B = .020, CI = .001; .049). The results of these analyses can be found at (https://osf.io/g8ya3).

Second, we re-ran Models 1.2, 1.3, and 3.1 while controlling for the lagged effect of daily mood. This enabled us to examine whether our findings held after controlling for how students felt the day before. Students' mood was indeed predicted by mood of the day before. None of our findings changed in terms of significance and direction – except for the effect of being defended in bully-directed ways on positive mood, which became non-significant (https://osf.io/g8ya3).

Lastly, we wanted to understand better why the role of being defended on positive mood was only significant for the two specific types of being defended, whereas it was non-significant (a trend) for being defended in general. We assumed this may have had to do with the observations on which students were defended in *both* bully- and victim-directed ways. On 114 observations, participants reported that they had been defended in both bully- and victim-directed ways. The relative percentage of students reporting being defended in both ways was higher in analyses on the *specific* types of being defended as compared to in the analyses on being defended in *general*. For instance, on 76.2% of the observations on which students were defended in bully-directed ways, they were also defended in victim-directed ways (114 out of the 151 observations) whereas the percentage of students who were defended in both ways constituted 54.3% of the observations on which students were defended in general (i.e., 114 out of the 210

TABLE 5 The cross-sectional mediating role of self-blame in the link between general defending and mood in a sample of repeated victims ($n_{individuals} = 144$, $n_{observations} = 1778$).

	Positive mood			Depressed mood			Humiliation		
	B (*SD*)	*p*	*β*	*B* (*SD*)	*p*	*β*	*B* (*SD*)	*p*	*β*
Outcome: Self-blame									
Intercept	2.270 (.124)			2.263 (.121)			2.263 (.121)		
Within-person									
No witnesses	.044 (.053)	.396	.036	.047 (.054)	.362	.039	.048 (.054)	.348	.040
Non-defended	.151 (.070)	.032	.080	.156 (.070)	.028	.083	.154 (.070)	.028	.082
Within-person variance	.250			.249			.249		
R^2 within	.008			.008			.008		
Between-person									
Gender (0 = girl)	−.136 (.154)	.376	−.077	−.121 (.158)	.428	−.068	−.120 (.159)	.436	−.067
Never witnesses	−.083 (.176)	.640	−.046	−.087 (.169)	.618	−.048	−.087 (.169)	.618	−.049
Never defended	−.013 (.162)	.940	−.008	−.013 (.163)	.948	−.008	−.013 (.163)	.944	−.008
Between-person variance	.667			.666			.666		
R^2 between	.023			.022			.022		
Outcome: Mood									
Intercept	2.988 (.173)			1.710 (.198)			1.618 (.214)		
Within-person									
Non-victimized	.171 (.081)	.040	.116	−.363 (.090)	.002	−.216	−.285 (.080)	.002	−.194
No witnesses	.036 (.082)	.652	.023	.012 (.093)	.912	.007	.020 (.082)	.910	.013
Non-defended	−.087 (.097)	.340	−.037	.190 (.110)	.072	.070	−.015 (.097)	.990	−.006
Self-blame	−.090 (.060)	.062	−.071	.094 (.050)	.060	.065	.146 (.045)	.002	.115
Within-person variance	.394			.490			.382		
R^2 within	.024			.072			.058		
Between-person									
Gender (0 = girl)	.319 (.117)	.008	.236	−.455 (.131)	<.001	−.287	−.440 (.142)	.004	−.255
Never witnesses	−.115 (.132)	.384	−.085	.083 (.142)	.482	.051	.060 (.154)	.718	.035

(Continues)

TABLE 5 (Continued)

	Positive mood			Depressed mood			Humiliation		
	B (*SD*)	*p*	*β*	*B* (*SD*)	*p*	*β*	*B* (*SD*)	*p*	*β*
Never defended	−.310 (.122)	.010	−.224	.211 (.138)	.136	.140	.099 (.149)	.528	.060
Self-blame	−.066 (.065)	.268	−.087	.256 (.074)	<.001	.288	.264 (.080)	.002	.275
Between-person variance	.338			.423			.517		
R^2 between	.138			.210			.173		
Mediation									
Mediation effects within	−.012 (.010)	.094		.013 (.011)	.082		.021 (.013)	.028	
Mediation effects between	.000 (.015)	.968		−.003 (.043)	.944		−.003 (.044)	.944	

observations). Thus, the effect of *being defended in both ways* may have been captured more strongly in the models on specific types of being defended. To provide more insight into the role of being defended in both ways, we retrieved averages of daily mood on observations that victims were (1) solely defended in bully-directed ways, (2) solely defended in victim-directed ways, and (3) defended in both ways. Indeed, on days that victimized students were defended in both bully- *and* victim-directed ways, they had a more positive mood ($M = 3.17$, $SD = .95$) as compared to days that they were defended in only bully-directed ways ($M = 2.62$, $SD = 1.03$) or victim-directed ways ($M = 2.87$, $SD = .83$), see Appendix S12: Table S11. Given the small number of observations on which students were being defended in bully-directed ways ($n = 37$), we decided to not conduct additional multi-level regression analyses to more systematically examine these effects.

DISCUSSION

This registered report presents the first large-scale daily diary study that examines whether being defended diminishes victims' mood problems and self-blame, both at the within- and between-person level, in a sample of adolescents. Findings indicate that adolescents had more mood problems on days that they were victimized as compared to on days that they were non-victimized. The link between victimization and mood problems was exacerbated when witnesses were present but when these witnesses did not reach out to help. Specifically, students had a significantly more depressed mood on days that they were victimized *but not* defended as compared to on days that they were victimized *and* defended, with medium effect sizes. Being defended also buffered against a within-person drop in positive mood, even though these effects were small. Furthermore, repeated victims were less likely to blame themselves for victimization on days that they were defended as compared to days that they were non-defended, which, in turn, diminished feelings of humiliation (indirect effect). Even though being defended related to fewer mood problems, students still felt worse on days when they were victimized *and* defended as compared to on days they were non-victimized. Apparently, being defended does not fully "make up" for the stressful victimization experience.

At the between-person level, students who were victimized at least once experienced more mood problems as compared to students who were never victimized across observations. Yet, victims who were defended at least once had a less depressed mood and more positive mood as compared to victims who were never defended.

No moderating effects of gender emerged, and findings were mostly consistent for victim- and bully-directed types of defending. Altogether, these findings indicate that if witnesses are present, being defended may benefit victims of bullying by mitigating daily mood problems, not only directly but also indirectly by reducing self-blame.

Prevalences of victimization, witnesses, and being defended

The current daily diary study used an unprecedented number of participants, who were followed across multiple school weeks, providing novel insights in the prevalences of daily victimization, the presence of witnesses, and defending. On average, students reported that they had been victimized on one out of seven school days. Almost 40% of the students indicated at least once that they were being victimized across the full observation period (2–3 school weeks), which seems pretty high, but this could be due to the fact that we asked about specific forms of victimization (Huang & Cornell, 2015). About 10% of the adolescents was repeatedly victimized across weeks, which corresponds to the prevalences in previous work in which questionnaires asked about victimization during the past few months (Bjereld et al., 2020).

Our study indicates that about half of the victimization events occurred in the presence of witnesses. This percentage is lower than detected in previous work (about 80%; Craig et al., 2000). It seems that

– on a daily basis – bullying may not always be a group phenomenon in which bystanders are present. Of course, it still is possible that the bullying was endorsed by multiple perpetrators – future work should further disentangle this to provide better insight in daily aspects of bullying.

Furthermore, prevalences indicate that *if* bystanders were present, they reached out to help the victim about half of the time. This percentage is higher than percentages reported in a previous daily diary study (see Nishina, 2012, in which only 28 to 33% of victims with witnesses reported that someone tried to make them feel better). This may be due to the fact that we had more items assessing the various ways in which students could defended. Our findings could also reflect the situation specific to Finland in which anti-bullying policies that encourage defending receive much attention and are found to be effective (Garandeau et al., 2023).

The role of being defended in victims' daily mood

Being victimized at school was an important daily stressor for adolescents. Even though students most often reported that they were victimized 'a little bit', significant increases in mood problems were observed on days that this victimization happened, which is consistent with previous daily diary studies (Herres et al., 2016; Nishina & Juvonen, 2005). Effects were quite large, as victimization explained up to 10% of the daily fluctuations in mood – in particular for depressive mood and humiliation. Importantly, in line with the stress-buffer hypothesis of social support (Cohen & Wills, 1985), being defended buffered against the stress arising from victimization by mitigating depressed mood (explaining an additional 15% of the variance) and – to some extent – preventing a drop in positive mood. No direct effects emerged of being defended on humiliation. A similar pattern was detected at the between-person level.

The finding that being victimized and (non)defended was most strongly predictive of daily fluctuations in *depressed mood* aligns with meta-analytic findings showing the largest effect sizes of victimization on depressive symptoms (Moore et al., 2017). It also corresponds to evidence that depression is linked to a low sense of belonging (Kawamoto et al., 2015).

The finding that being defended buffered against a within-person drop in *positive mood* aligns with a previous daily diary study (Reavis et al., 2015), even though effect sizes were small. Interestingly, the link between being defended and increased positive mood only emerged for the two specific types of being defended. Additional explorative analyses seemed to suggest that students had a more positive mood, especially on the days that they were defended in *both* bully- and victim-directed ways compared to when they were only being defended in one way. Even though these descriptive analyses should be interpreted with caution given the small number of students who were only defended in bully-directed ways, it is possible that a certain consistency between bystanders' words (e.g., comforting a victim by saying that the bullying is not okay) and their deeds (e.g., actually standing up against the bully by saying that their behaviour is not okay) may particularly benefit victims' positive mood. Examining the relative impact of being defended in one versus multiple ways is an interesting area for future research.

Lastly, being defended was unrelated to daily feelings of humiliation. One reason for this may be that individual characteristics or some characteristics of the victimization actually moderate the extent to which being defended predicts humiliation, and that failing to take these into account in our study has led to this *null* finding. Indeed, previous work found that daily peer victimization by multiple perpetrators led to increased humiliation, whereas daily victimization by a single perpetrator did not (Nishina, 2012). In our study, we detected the role of peer victimization in humiliation, but it is possible that the role of being defended still depends on the number of perpetrators. We did not have information on the number of perpetrators because we could only include a limited number of items in our questionnaire. Thus, future work examining the role of victimization in humiliation may examine more micro-level characteristics that could moderate this link. Another reason why being defended was unrelated to humiliation may be that humiliation is a qualitatively different

emotional response as compared to depressed or positive mood. Following social self-preservation theory (Gruenewald et al., 2004), humiliation is a self conscious, shame-related emotion that may help in maintaining a positive 'social self' under threatening circumstances. Thus, humiliation may be a very natural and even functional response to stressful social experiences and therefore difficult to counteract (Gruenwald et al., 2007). Moreover, because humiliation is a self-conscious emotion, it is possible that defending is only *indirectly* related to humiliation via cognitions (which are conscious). We indeed detected an indirect link between being defended and humiliation, which we elaborate on below.

Even though being defended benefitted daily mood, students still felt worse on days when they were victimized *and* defended as compared to on days when they were non-victimized. Apparently, being defended does not fully 'make up' for the stressful victimization experience. This finding aligns with previous studies examining the role of being defended on psychological adjustment across longer time-spans (e.g., months, Laninga-Wijnen, van den Berg, et al., 2023). Interestingly, students' mood did not differ across days when they were a witnessed defended victim compared to days when they were a non-witnessed victim. Apparently, *if* witnesses are present, how they behave is very important: they can really make a difference in victims' daily mood (Ma & Chen, 2017). Future work is encouraged to also examine whether students who have *no* witneses differ from students who do have witnesses but are not defended. Our descriptive analyses indicated that on days that students were victimized, they felt worst if they had witnesses who did not defend them, and they felt best if they had witnesses who defended them. They felt "in between" on days when they were victimized *without* witnesses. These differences were not tested for significance, as we did not pre-register any hypotheses on this. Future researchers could examine whether having passive bystanders or bystanders joining the bullying also makes a difference for daily mood.

The role of being defended in victims' self-blame

To our knowledge, our study was the first to examine the role of being defended on daily fluctuations in self-blame. In line with our expectations, we found that students were less likely to blame themselves for victimization on days they were victimized *and* defended as compared with days they were victimized but *non*-defended. The effect was detected for being defended in bully-directed rather than victim-directed ways. This aligns with our reasoning that bully-directed defending more strongly diminishes self-blame than victim-directed defending, because bully-directed behaviours could signal to victims that their peers consider the bullies to be blamed for the situation. This may help the victim in acknowledging that the bullying is an external problem – such as due to bully characteristics or classroom atmosphere (Graham & Juvonen, 1998) – which potentially buffers against developing characterological self-blaming attributions.

Effect sizes of being defended on self-blame were small, perhaps because it may take longer before students develop certain cognitive schemas (Dozois & Beck, 2008). Moreover, for causal attributions, it may be important to have a certain consistency in events, or in other words, consistent 'disconfirming evidence' (Graham & Juvonen, 1998). That is, if students are consistently defended *whenever they are victimized*, this may more strongly contribute to their belief that they are not to blame for the victimization as compared to when students are occasionally defended when victimized. In the current study, it became clear that students – on average – were defended in about half of the observations in which witnesses were present. Thus, students may not always be defended if they are being victimized, and this inconsistency of defending may make it challenging to develop adaptive cognitions about the cause of the victimization (and the stability of this cause).

Even though the effects of being defended on daily self-blame were small, they may still be important. Self-blame relates to greater feelings of hopelessness and shame in victims and can elicit passive coping styles. Therefore, self-blame cognitions may be a prominent reason why victims develop

psychological problems (Graham & Juvonen, 1998). Cumulative experiences of being defended may – over time – diminish self-blame and hence prevent victims from psychological problems over time.

The mediating role of self-blame in the link between being defended and mood

Even though being defended was not directly related to feelings of humiliation, students who were repeatedly victimized had lower feelings of humiliation on days that they were being defended via diminished self-blame for victimization (i.e., an indirect effect). Feelings of humiliation reflect self-conscious emotions (Lewis, 2000; Somerville et al., 2013) and have been referred to as a 'cognition-dependent' emotion because they are preceded by cognitions (Izard et al., 2000). The fact that we detected an indirect effect via self-blame cognitions underpins this statement. The effect emerged for bully- but not victim-directed ways of defending. No indirect effects were observed for depressed and positive mood; perhaps these are more 'basic' automatic feelings in response to certain events that may not require an intermediate cognitive process.

In exploratory analyses we tested whether mediation effects of cross-sectional models held after controlling for stability in mood (so-called inertia) because we know that this has an important effect on how people feel (Koval et al., 2012). The mediation effect on humiliation indeed remained significant. However, no effects emerged in longitudinal mediation models in which we included experiences of victimization and defending on the previous day to predict mood on the next day. We already anticipated this might happen because these models were rather complex for our relatively small selective sample of repeated victims. Moreover, experiences of victimization and defending may be particularly impactful on the day these events happen. The next day, students may not necessarily feel worse, and some students may even experience recovery or resilience effects. Therefore, after controlling for the role of victimization and defending on daily mood that same day, the effect of victimization and defending on daily mood the next day may be negligible.

Strengths, limitations, and future directions

The current study is pioneering in many ways. For example, it includes an unprecedented number of participants ($n = 1669$) and observations ($n = 12{,}366$) which is much higher as compared to in previous daily diary studies (e.g., $n = 75$ or $n = 300$, followed for about 5 days; Nishina, 2012; Reavis et al., 2015). This large sample provides intriguing insights in the prevalence of daily victimization and defending, and enabled us to apply advanced statistical modelling to test our hypotheses. Other strengths include that the full study was pre-registered before any data-collection had taken place, we distinguished between being defended in victim- and bully-directed ways, and we focused on various types of mood *and* self-blame cognitions as outcomes.

The current study also has limitations. First, despite the large sample and our extensive efforts to follow-up on daily compliance, students filled in 61% of the questionnaires that were issued to them. However, this is not uncommon for intense data-collections, especially among adolescents, and we were able to impute missing data-points using advanced Bayesian techniques.

A second limitation is that retrieved findings are primarily cross-sectional in nature. Thus, it is possible that on days that students are in a better mood than usual, they may be more likely to attract defending when being victimized, as compared to on days on which students experience a worse mood than usual. However, our effects held after controlling for the mood of the previous day. It also is possible that other potential factors play a role in our model. For instance, students' self-esteem can fluctuate from day to day (Nelis & Bukowski, 2019) and potentially relate to both mood problems and the likelihood of being defended. Future work is encouraged to further explore such factors. Third, we did not systematically examine the effects of being defended in both ways. At the same time, exploratory analyses suggest that the group of students who are defended in both ways

may differ from students who are defended in solely bully- *or* victim-directed ways. We did not pre-register to look at the role of being defended in multiple ways. Moreover, even though we recruited a large sample of adolescents, the sample of students defended in solely bully-directed ways ($n = 37$) was likely too small to conduct these analyses. Future work is encouraged to recruit larger samples to examine whether being defended in both ways may be particularly beneficial for victims. Future work may also more systematically assess what forms of defending are most effective. In our study, bully-oriented defending seemed to have most wide-spread effects by not only affecting mood but also cognitions (which even further improved mood). A final limitation is that we took a categorical approach in examining the role of being victimized and defended, for instance, by comparing those who were victimized at least a little bit in at least some way versus those who were not victimized. It is possible that being victimized in more severe ways or multiple forms may be more detrimental to students' daily mood (Nishina & Juvonen, 2005). Also, being defended multiple times by multiple peers, for instance, may have stronger effects as compared to being defended one time by just one peer. In our study, we took a first step in understanding the role of being defended in daily mood and self-blame cognitions, and despite a somewhat limited approach, we detected clear effects. Future work is encouraged to further finetune under which circumstances the effects of victimization and defending are most evident. An interesting finding is that there were no differences between boys and girls in their reactions to being defended. Our finding diverges from some previous work, which suggests that boys profit less from receiving help in the case of victimization than girls. For instance, a cross-sectional study on 8th grade students found that perceived emotional support buffered against psychological problems in victimized girls but not in victimized boys (Schacter & Juvonen, 2020). A daily diary study on 6th and 9th grade students showed that boys (but not girls) reported increased worry on days they were victimized and received help as compared to on days they did not receive help (Nishina, 2012). Our study varies from these previous studies in many ways (e.g., sample and methodological characteristics), but we believe the most important distinction is that we very thoroughly and concretely assessed the many ways in which support could be provided. It is possible that therefore we were able to capture types of support (defending) that may profit both victimized boys and girls.

Implications

The finding that being defended mitigates victims' mood problems provides an important theoretical underpinning for the various anti-bullying interventions that encourage bystanders to defend victimized peers. The current daily diary study indicates that bystanders reached out to help the victim about half of the time. Given the deleterious effects of being *non*-defended, this percentage is not enough. In particular in adolescence, when teachers are largely unaware of what happens in the peer group (Laursen & Veenstra, 2021) and may therefore be less likely to intervene in bullying situations, it is of vital importance that students learn how they can defend their victimized peers – whenever victimization happens. From our findings, it seems that both victim- and (perhaps in particular) bully-directed types of defending may benefit victims. Of course, it may depend on the situation which type of defending is most helpful for victims, and more research should be devoted to investigate further the effectiveness of specific types of defending behaviours. Moreover, future work is encouraged to examine whether the role of being defended in daily mood may also underlie the development of psychological problems in victims of bullying. Lastly, we should not forget about the effects of defending on defenders. Even though most studies indicate that defenders may not be at higher risk of low status or victimization as compared to those who do not defend (Laninga-Wijnen, Malamut, et al., 2023; Malamut et al., 2023). However, some students – such as low status victimized youth – may be at risk of increasing in depressive symptoms if they try to defend victims of bullying (Malamut et al., 2021). It is important to better understand the effects of showing defending behaviours on a daily basis as well. Thus, more research is

needed on this topic to contribute to a more solid understanding of the benefits of being defended for victims *and* defenders themselves.

CONCLUSION

The goal of the current study was to examine whether being defended benefits victims of bullying by preventing mood problems and diminishing self-blame cognitions. Even though the few previous studies on this topic detected at least some beneficial effects of being defended, findings were somewhat inconsistent. Moreover, more recent theoretical work even questioned whether being defended can sometimes adversely impact victims' psychological adjustment (Healy, 2020). Previous work could not provide a clear answer to this question because it was limited in various ways. For instance, these studies primarily took a between-person approach and asked about victimization and adjustment over the past months, yielding issues with memory bias and other cognitive distortions. The current study is the first to conduct a daily diary design using a large sample and a high number of observations. Even though analyses were cross-sectional, they did not point to any adverse effect of being defended. Instead, we detected beneficial effects of being defended, consistent across outcomes and types of defending. Findings even held after controlling for the mood of the previous day, providing us with even more confidence that being defended actually is helpful for victims of bullying. Nevertheless, this does not preclude us from strongly recommending future researchers attempt to replicate and reproduce our findings.

AUTHOR CONTRIBUTIONS

Lydia Laninga-Wijnen: Conceptualization; investigation; funding acquisition; writing – original draft; methodology; software; formal analysis. **J. Loes Pouwels:** Conceptualization; writing – original draft; methodology. **Matteo Giletta:** Conceptualization; writing – original draft. **Christina Salmivalli:** Conceptualization; writing – original draft.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The Design and sampling have been preregistered on https://osf.io/dqhsn. Our study has been preregistered before data-collection started; the preregistered document can be found on https://osf.io/zh4w9. The approved Stage I document can be retrieved from: https://osf.io/d58bp. We thank all the schools and students for participating in the SOLID project. All meta-data and syntaxes necessary to replicate this study are made available on (https://osf.io/g8ya3). Data is available upon request and will be publicly provided once the full SOLID project has ended.

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SUPPORTING INFORMATION

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