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Bullying Victimization through an Interpersonal Lens: Focussing on Social Interactions and Risk for Depression

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English summary

Many people - children, adolescents, and adults – have bullying experiences. In the research context, bullying is commonly defined as intentional, systematic, and repetitive aggression towards a person who is unable to defend themselves against someone who is in a higher position of power (Olweus, 1996). Being a victim of bullying means having a higher chance for developing mental health problems, specifically depression, compared to peers without bullying experiences (Moore et al., 2017). These symptoms tend to persist even when the bullying has stopped and when victims have left the bullying environment. It is still rather unclear why and how victims have an increased risk for depression. Therefore, in this dissertation, I focussed on factors that may help explain *how* victims develop symptoms of depression. Coming to know more about mechanisms involved in the victimisation-depression relation may provide important leads to help prevent such impactful mental health problems.

A social ecological and interpersonal perspective on bullying

In this dissertation, I examined interpersonal functioning as a potential mechanism explaining victims' increased risk for symptoms of depression (see Figure 1). Contemporary Integrative Interpersonal Theory (CIIT; Pincus, 2005; Pincus & Ansell, 2013) describes interpersonal situations as a basis for individuals to develop and determine their level of self-esteem and secure attachment with others. From this perspective, interpersonal situations are seen as crucial human experiences where, over the course of life, social learning occurs (Hopwood et al., 2019, 2021; Pincus & Ansell, 2013). Therefore, interpersonal situations are seen as playing a key role in every person's development. Experiencing interpersonal situations that are perceived as unsafe and that are paired with an unpleasant emotional experience can feel as a threat to the aspired motives of security and self-esteem and can promote problems in affect regulation (e.g., anger) and interpersonal style (e.g., hostile behaviours; Pincus, 2005; Pincus & Ansell, 2013; Pincus et al., 2010).

Applying CIIT to the context of bullying, problems in affect regulation and interpersonal style may arise through stressful negative encounters with bullies and bystanders who do not intervene and therefore add to the perceived unsafety of the situation. As bullying victimisation occurs repeatedly by definition, such distressing interpersonal situations can give rise to unsafe representations of the self and threatening representations of others (e.g., hostile attribution bias).

This can result in enduring patterns of maladaptive interpersonal functioning (Hopwood et al., 2019). More specifically, victims might increasingly expect that interpersonal situations are accompanied by hostility and unsafety (i.e., altered perceptions) and might also experience increased negative affect. Victims might also develop maladaptive behavioural responses as a result of their negatively coloured mental representation of an interpersonal situation. For instance, during encounters with bullies who are (perceived as) dominant and hostile, or with individuals with similar interpersonal styles to bullies, victims might turn to hostile responses as an attempt to defend themselves. Hostile responses by the victim can increase the chances of re-victimisation and can also increase the chance for interpersonal conflicts with other people, outside the bullying context. A vicious cycle can develop of negative interpersonal encounters feeding unsafe perceptions, negative affect, and adverse behavioural responses, and subsequently again leading to more interpersonal conflicts. In the long run, this can lead to relationship (e.g., with family, friends, romantically) and mental health problems (see Figure 1; Hopwood et al., 2013; Horowitz et al., 2006; Pincus & Hopwood, 2012; Pincus & Wright, 2011).

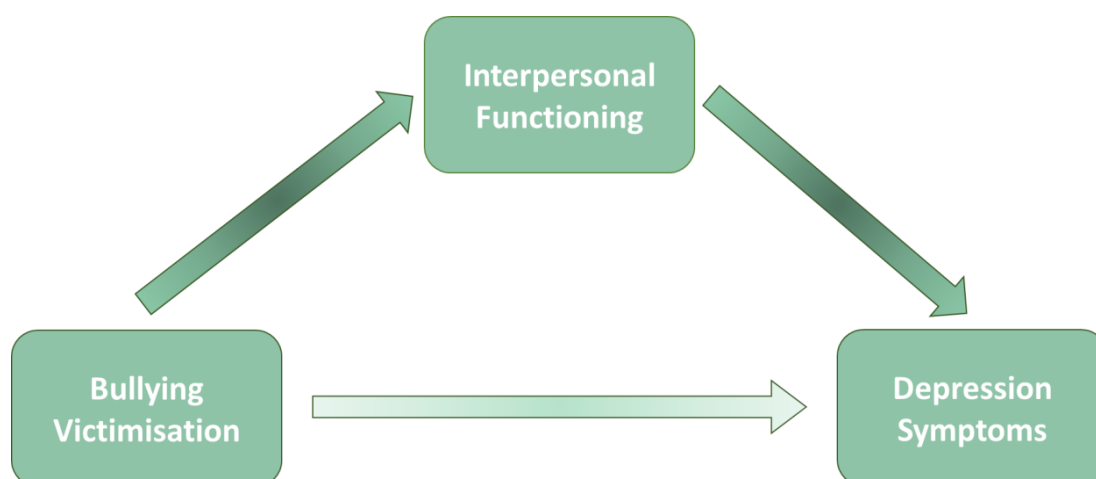


Figure 1. Representation of my proposed mediation model.

Interpersonal functioning of victims of bullying

Previous research provides support for the idea that interpersonal functioning is a relevant factor to consider in victims, and which distinguishes victims from individuals without bullying experiences. For example, victims have been reported to have more problems recognising other's emotions, to be more suspicious, and to have a hostile attribution bias (e.g., Ciucci et al., 2014; Ziv et al., 2013). Additionally, research suggests victims to have trouble with understanding how others feel (i.e., cognitive empathy; van Noorden et al., 2015). Thus, victims may have more negative interpersonal perceptions. Additionally, victims have also been shown to behave

differently in social situations compared to their non-involved peers. For example, reacting more hostile and also being more submissive and less assertive (e.g., Manning et al., 2018; Sijtsema et al., 2009). These findings of maladaptive interpersonal style in victims are in line with findings in the field of depression. This points to interpersonal style as a link between victimisation and depression. However, this has not yet been examined as such in previous research. I was the first to apply CIIT as a theoretical basis to systematically study interpersonal functioning in victims of bullying and to explain how victims may develop depression symptoms.

Chapter 2: A Call for Studying Interpersonal Characteristics of Victims of Bullying: Novel Approaches and Measures

Interpersonal functioning is context-sensitive and therefore varies not only between individuals but also within a person (Reis, 2014). In order to capture and actually study those between- and within-person differences, more elaborate methods are necessary that go beyond one-time retrospective questionnaire-based assessments. In *chapter 2*, I present three methodologies, namely, performance-based measures, experimental designs, and intensive repeated measures in naturalistic settings (IRM-NS). I argued why and discussed how they can be applied in the field of bullying, in order to systematically study interpersonal functioning in victims.

Performance-based measures create a controlled and comparable environment for all participants (e.g., a standard interpersonal situation). In this way they are different to most retrospective questionnaire-based studies, which are more prone to between-person differences in the interpretation of the interpersonal situation in question and hence to participants completing the questionnaire differently. Using performance-based measures, responses can be compared more reliably between groups, as everyone is exposed to the same interpersonal situation. Experimental designs include an experimental manipulation of a factor such as of an interpersonal situation or characteristic, meaning that effects of an experimental condition are compared to those of a control condition (e.g., being socially excluded vs. not). This way, interpersonal responses to the two conditions can be compared. Regarding IRM-NS, in *chapter 2*, I specifically recommended using event-contingent recording of social interactions (ECR; Moskowitz, 1994; Moskowitz & Sadikaj, 2014) as an approach to study multiple aspects of victims' real life interpersonal functioning, in various contexts, and very close in time to the experienced social interaction.

In sum, in *chapter 2* I argue that all three methodologies are useful when studying interpersonal functioning of victims as they offer to study causal associations between victimisation experiences and interpersonal functioning as well as within-person variability (e.g., are there specific contexts in which victims show more interpersonal struggles?). This in turn can help to better understand how and why victims more often develop (symptoms of) depression compared to individuals without bullying experiences.

One specific suggestion I provided was the use of ecologically valid stimuli which can be accomplished via virtual reality (VR) technology. In *chapter 3* (see below for results), I applied one performance-based task which included VR technology to study victims' emotion recognition accuracy. Additionally, I examined empathic accuracy, and likely behavioural responses to facial emotions. While keeping a controlled environment, the applied tasks offered ecological validity in terms of social context.

In *chapter 4* (see below for results) I applied ECR, a method that offers both, ecological validity in terms of social context and in terms of naturalistic stimuli. I used ECR to study victims' interpersonal behaviours, perceptions, and affect during real-life social interactions in the final year of high-school and one year later, after transitioning out of high school. This way, I was able to study more context-specific changes (or within-person variability) in interpersonal behaviour, such as the influence of the perceived behaviour of the interaction partner on a victim's interpersonal functioning. The longitudinal set-up of my study enabled me to learn more about stability of interpersonal style when the environment changes and individuals, for example, leave the bullying environment.

As a final step, in *chapter 5* (see below for results), I tested my mediation model of victims' interpersonal functioning explaining their risk for depression. The use of questionnaire data from a large longitudinal population-based study enabled me to test whether high hostility and low assertiveness (at age 16 years) partially explained victims' (assessed at age 13) increased risk for depression symptoms (at age 19).

Chapter 3: Victims of Bullying: Emotion Recognition and Understanding

There is a relatively small number of previous studies (see *chapter 2*) that have used performance-based measures to assess interpersonal characteristics of victims of bullying. Most often, those studies only assessed one specific interpersonal aspect, limiting the comparability between studies using different methods. Applying various performance-based measures, in

chapter 3, I systematically assessed three different interpersonal characteristics in order to streamline the understanding of victim's interpersonal functioning and to gain a multi-faceted picture within the same sample of individuals. This way, I was able to simultaneously compare multiple interpersonal characteristics, assessed in a controlled setting, between victims ($n=24$) and non-involved ($n=21$) individuals ($M_{age}=17$ years). In detail, I tested how valid their perceptions of potential interaction partners are (i.e., emotion recognition task), whether they can interpret other's emotional states accurately (i.e., empathic accuracy task), and I assessed participants' likely behavioural responses to other persons' emotions (i.e., facial emotion response task). So far, none of the innovative tasks that I applied have been used in samples with bullying victims. Specifically, my study was the first to use virtual reality (VR), real-life autobiographical video stimuli, and the facial emotion response task to assess victims' interpersonal characteristics.

I found that victims and non-involved individuals significantly differed in recognising emotions when taking their depression symptoms into account. This suggests a negative relationship between bullying victimisation and emotion recognition accuracy, independent of underlying depression symptoms. Across emotions, victims had a lower recognition accuracy than non-involved individuals. This relation was further qualified by emotion-specific differences. Victims showed lower accuracy for neutral faces, which they mainly mistook for angry faces. In sum, in contrast to expectations, adolescents with a high-school history of bullying victimisation mostly showed similar interpersonal characteristics as non-involved individuals. Nonetheless, I found some subtle differences regarding emotion recognition. Victims more often misjudged neutral as angry faces. This suggests a hostile attribution bias, which might help explain victims' interpersonal problems as well as their increased risk for mental health problems.

Chapter 4: Interpersonal Style and Depression Symptoms in Victims of Bullying Before and After Transitioning Out of High School

In my next study, as described in **chapter 4**, I went beyond examining victims' general interpersonal functioning and comparing them to those of peers without bullying experiences (between-person differences), and also examined how interpersonal characteristics vary within the individual (within-person differences). In addition, I did so at two time points, once while participants were in their last year of high school (T1) and again one year later, after their transition out of school (T2). This way, I assessed interpersonal functioning while individuals were still in the likely bullying environment (i.e., school) and also short-term longitudinal associations between interpersonal functioning and victimisation experiences once they left the bullying environment.

Therefore, my study helped to gain insight into the potential stability of victims' interpersonal functioning after a major life transition, and to test how their interpersonal style during high school is related to their depression symptoms a year later.

In line with my own recommendations from **chapter 2**, I applied ECR to assess their everyday interpersonal behaviours, perceptions, and affect when having a conversation with others. This way, I was able to assess real-life interpersonal characteristics close in time to actual interpersonal situations, thereby minimising recall bias, while also assessing the context in which the social interaction took place. This way, I could examine both between-person differences of interpersonal functioning between victims and non-involved peers, as well as within-person variability of their context-sensitive interpersonal characteristics. At T1, there were 27 self-reported victims of bullying and 56 non-involved adolescents ($M_{age} = 17$ years); 9 victims and 26 non-involved adolescents also completed T2. At both time points, participants recorded their social interactions on their smartphones for 14 days. Interpersonal behaviours and perceptions were assessed in terms of dominance-submissiveness and agreeableness-quarrelsomeness.

I found that at both time points, victims reported more depression symptoms than non-involved individuals. At T1, victims generally reported perceiving others as less agreeable and feeling more negatively than non-involved adolescents. Therefore, when still in high school, victims were different from non-involved adolescents in their perceptions of others and affect across situations. At T2, after transitioning out of high-school, no overall differences were found anymore. Instead, interpersonal differences became subtler and context-specific. When in situations with dominant others, victims behaved less dominantly and perceived the interaction partner as less agreeable. Potentially, victims perceived social interactions with dominant others as stressful because they reminded them of past experiences with bullies, who are generally considered dominant (Salmivalli, 2010). In these situations, previous more maladaptive interpersonal functioning patterns or vulnerabilities might have been elicited again. This context-specific stress-sensitivity suggests that, even after the bullying has ended, and the environment has changed, in specific stressful situations, past bullying experiences continued to distinguish victims from non-involved peers. These findings point towards a vicious cycle that can develop, with vulnerabilities being fed and maintained by certain interpersonal situations perceived as stressful by the victim. This can help explain why victims in my study continued to have more depression symptoms than their non-involved peers after their transition out of high school.

Chapter 5: How do victims of bullying develop depression? Testing interpersonal traits as an explanatory factor for the victimisation-depression link

In my final study, as described in **chapter 5**, I tested my mediation model. Specifically, I examined whether victims' hostile and non-assertive interpersonal traits explained their increased risk for depression compared to non-involved peers. More specifically, I tested within a large, longitudinal, population-based study (TRAILS) whether victimisation experiences at the age of 13 years were predictive of their depression symptoms at age 19 and whether their interpersonal style assessed at age 16 partly could explain this relation. In TRAILS, the hostility and assertiveness facets of the NEO-PI-R were assessed (Costa & McCrae, 1985, 1992). These facets represent a more trait-like representation of interpersonal functioning as compared to the more state-like assessment in my ECR study in **chapter 4**.

Of note, I tested my mediation model based on self-reported victimisation experiences ($N_{\text{victims}} = 274$, $N_{\text{bully-victim}} = 73$, $N_{\text{bully}} = 228$, and $N_{\text{non-involved}} = 1498$) and secondarily using peer-reported information ($N_{\text{victims}} = 74$, $N_{\text{bully-victim}} = 40$, $N_{\text{bully}} = 60$, and $N_{\text{non-involved}} = 794$). Previous research suggests there to be a differential pattern between the two nomination styles, with self-reported victimisation to be more strongly related to internalising symptoms than peer-reported victimisation (Christina et al., 2021). I took the initiative to test my mediation model for both nomination styles. This expanded previous research by examining whether there is also a differential effect regarding the role of interpersonal traits in explaining victims' depression symptoms. Although my dissertation was focussed on victims of bullying, due to available data, I also tested my mediation model for bully-victims and bullies. Previous research suggests those two groups to also have more hostile traits than non-involved peers, and in fact also more than victims (e.g., Salmivalli & Nieminen, 2002). This suggests my mediation model could also be applicable to these two bullying groups.

I found that, compared to non-involved peers, self-reported victims had an increased risk for depression symptoms. About a third of that risk could be explained by victims' hostile traits. This interpersonal link between victimisation and depression was not found for assertiveness, and was not found in the peer-report data. Similar mediation findings were observed for bully-victims and bullies. My results suggest that part of the heightened risk of victims to develop depression over time may indeed be attributed to victimisation-associated changes in at least one aspect of interpersonal functioning. As hostility increases hostile responses in others, victims may be more likely to develop interpersonal problems, which are thought to represent a risk factor for depression (Sato & McCann, 2007; Vrshek-Schallhorn et al., 2015). Similar processes might be true for bully-victims and bullies.

In conclusion

Across the studies, I consistently found that victims had higher depression symptom levels compared to non-involved peers. Victims experienced more depression symptoms while still in school (see **chapters 3 and 4**) as well as once transitioned out of high school and in early adulthood (see **chapters 4 and 5**). This is in line with previous research reporting both cross-sectional and longitudinal associations between bullying victimisation and depression (Camerini et al., 2020; Moore et al., 2017; Reijntjes et al., 2010) and with the idea of depression symptoms persisting even when the bullying has stopped and when victims have left the bullying environment.

Regarding interpersonal functioning during high school, across my studies, victims had a more maladaptive interpersonal style compared to non-involved counterparts, although less pronounced than I expected. I found evidence for victims experiencing social interactions as more negatively, having a hostile attribution bias, and victims having more hostile traits. Of note however, when examining actual day to day interpersonal behaviours of victims (as in **chapter 4**), or asking victims to indicate their likely behavioural responses in response to facial emotions (as in **chapter 3**), I did not find that victims behaved differently to non-involved individuals. In sum, data of two studies showed victims having more negative interpersonal perceptions during high school, whereas data regarding (potentially) maladaptive behaviours were mixed.

Regarding interpersonal functioning after transitioning out of high school (or the potential bullying environment), I found that, compared to findings of victims' interpersonal style during high school, there were no overall differences anymore between victims and non-involved peers, suggesting that their interpersonal style became more similar after transitioning out of high school. However, when in a situation with a dominant other, thus a potential reminder of past experiences with bullies, victims reported less adaptive reactions than non-involved peers.

Finally, when testing if interpersonal traits can actually explain victims' increased depression symptoms, I found that victims' hostile traits explained about a third of their increased risk for depression. Therefore, I found some evidence for my proposed mediation model of interpersonal characteristics explaining how victims develop depression symptoms. Together, the pattern of findings also suggests that addressing interpersonal functioning of victims by means of interventions, whether at school or in a therapeutic setting, could help prevent victims to experience more interpersonal conflicts and to develop mental health problems.

