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An Integrative Review of Cross-National Comparisons of Verbal, Relational, and Physical Peer

Victimization: Gender Differences, Paradoxical Anti-Bullying Attitudes, and Well-Being

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**Victimization in Educational Settings:
An Integrative Review and Cross-National Comparisons of Verbal, Relational, and Physical
Victimization in Relation to Gender, Mental Health, and Well-Being
Abstract**

Current victimization studies and meta-analyses are based mainly on a unidimensional perspective in a few developed OECD countries. This provides a weak basis for generalizability over multiple victimization (relational, verbal, physical) components and different countries. We test the cross-national generalizability (594,196 fifteen-year-olds; 77 countries) of competing victimization models. In support of our three-component model, differentiating the multiple components of victimization facilitated understanding: gender differences (girls experience less physical and verbal victimization and stronger anti-bullying attitudes, but relational differences are small); paradoxical anti-bullying attitudes (physical victims have less –not more--anti-bullying attitudes); and well-being (policy/practice focuses primarily on physical victimization, but verbal and relational victimization effects are larger). These key findings provide theoretical advances with implications for policy, practice, and intervention.

Keywords: multiple components of victimization; cross-national comparisons; mental health and well-being; anti-bullying attitudes; exploratory structural equation modeling

An Integrative Review of Cross-National Comparisons of Verbal, Relational, and Physical Peer Victimization: Gender Differences, Paradoxical Anti-Bullying Attitudes, and Well-Being

Peer victimization is a growing and significant problem in schools around the world with serious negative implications for the mental health and well-being of victims (recipients of bullying), bullies (perpetrators of bullying), and whole school communities (Due et al., 2005; Hemphill, 2011; Juvonen & Graham, 2014; Author1 et al., 2001; Author1 et al., 2011; Mayer & Cornell, 2010; Olweus, 1991, 1993; Swearer et al., 2010). Peer victimization is an intentional act of aggression perceived as harmful by the victim (Card & Hodges, 2008; P. K. Smith et al., 2019). Whereas aggression may involve a 'one-off' or single event set of actions, victimization is characterized by experiencing sustained and repeated acts of aggression or intimidation such as name-calling, physical threats, social exclusion, and verbal/physical assault. These acts can occur between individuals or groups of individuals, and are in the context of an imbalance of power between the bully and victim (Olweus, 1991, Rigby 2007; Casper & Card, 2020; Author1 et al., 2003; Perry et al., 1988). Although this conceptualization applies to both victimization and bullying, our study aims to clarify competing structural models of the victimization construct in relation to anti-bullying attitudes, gender, and well-being, and to evaluate cross-national differences in physical, relational, and verbal victimization.

Repeated victimization is a significant risk factor and can lead to psychological distress, severe depression, psychopathology, and deteriorating physical health (e.g., Kaltiala-Heino et al., 1999; Author1 et al. 2004; Rigby, 2007). Adults victimized as children are more likely to be delinquents later in life (Wong & Schonlau, 2013), have poorer mental and physical health, be less financially well-off, and have poorer quality social relationships (Wolke et al., 2013). Tuiranivic and Pratt (2018) reported that victimization during adolescence was associated with adverse outcomes in adulthood, including criminal offending, alcohol abuse, drug use, risky sexual behavior, violent victimization, depression, low self-esteem, suicidality, hospitalizations, sexually transmitted infections, extreme weight control, and obesity. However, they also noted that these adverse effects were mitigated to some extent by a strong sense of school belonging and family attachment.

Students who witnessed verbal and physical violence at school are likely to be aggressive and truant and less engaged with school (Janosz et al., 2008). Borofsky et al. (2013) also found that exposure to community violence led to reduced school engagement and academic outcomes. Thus, the impact of school victimization is pervasive and enduring, extending beyond bullies and their victims to the peer group, school, community, and even country (OECD, 2019a). Considering that victimization is the most pervasive form of violence between children and youth in schools (Menesini & Salmivalli, 2017), its adverse effects are of worldwide concern.

Researchers have proposed numerous interventions intended to reduce victimization (Juvonen & Graham, 2014). The most widely recommended are whole-school interventions that focus on increased knowledge of bullying, awareness and monitoring, consistent responses, and strong anti-bullying policies (Juvonen & Graham, 2014). Consistent with this whole-school approach is an emphasis on attitudes towards bullying that are held by victims themselves as well as by bullies, other students, teachers, and parents (Boulton et al., 2002; Holt & Keyes, 2004). Also, in accordance with this focus on anti-bullying attitudes, social-ecological theory based on Bronfenbrenner's ecological framework (1994) emphasize the importance of school climate and children not directly involved as bullies or victims but involved as bystanders, or defenders offering varying degrees of support to bullies or victims (Hong & Espelage, 2012; Salmivalli, 2010; Yoon & Bauman, 2014).

Hong and Espelage (2012) emphasize that victimization intervention strategies need to target multiple levels, and built their theoretical model on Bronfenbrenner's (1994) ecological framework (e.g., individual, parent, school, and neighborhood levels). Although noting the potential value of cross-cultural studies, their review focuses primarily on US research. Hence, there is surprising neglect of the cross-national level that focuses on the present investigation. Extending the Hong and Espelage social-ecological framework, we propose that country-level differences in anti-bullying attitudes and policies to combat bullying, values, and culture can all influence victimization levels.

Within their social-ecological framework, Hong and Espelage (2012) emphasize the importance of bystanders who witness or observe the bullying incidence. They note that bystanders play a crucial role by watching the incident without helping the victim, encouraging the bully, and warning the bully if an adult is coming (J. Smith et al., 1999). However, bystanders can also sympathize or support the victim and express anti-bullying attitudes. However, Hong and Espelage note that surprisingly little research focuses on the role of bystanders and anti-bullying attitudes.

There has been a considerable emphasis and many approaches to how best to build interventions to counter victimization. However, based on systematic reviews and meta-analyses of victimization research, Juvonen and Graham (2014) conclude that victimization interventions are “disappointing”. This conclusion was similar to that by Berger (2007) based on her review of the bullying literature. In accordance with this conclusion, Hong and Espelage (2012) argue for the need for a social-ecological approach because of the limited success interventions to prevent or even reduce levels of victimization within schools. Indeed, despite widespread efforts to reduce victimization, world-wide prevalence rates of victimization have remained steady, and in some instances, have increased (Harbin et al. 2019; OECD, 2019a). At the level of the individual student, reported prevalence rates of victimization within a given year are as high as 75% (Glover, Gough et al., 2000), with 10%–15% of children experiencing chronic victimization by peers (Juvonen & Graham, 2014). OECD (2019) reports that in OECD countries, 23% of students reported being bullied at least a few times a month, and that the incidence rate increased from 2015 to 2018. There is also a consistent finding of higher rates of bullying in developing, non-industrialized countries than more developed countries (e.g., Craig et al. 2009; OECD, 2019a).

Critical Limitations in Victimization Research to be Addressed by the Present Investigation

Here, we focus on three critical limitations in victimization research—dimensionality, neglect of anti-bullying attitudes, and lack of evidence on cross-national generalizability. We argue that these limitations restrict understanding of the victimization phenomenon, and that overcoming these limitations has important implications for theory, research, policy, and intervention.

Dimensionality: Unidimensional, Bipartite, and Tripartite Models of Victimization

Is victimization best represented by a single global factor, two factors (a bipartite model), or three factors (a tripartite model)? We note that this issue—the multiple components of victimization and their usefulness for research, policy, practice, and intervention—remains one of the most highly contested topics in the victimization literature. Many applied victimization studies rely on a global or unidimensional approach, but typically without a theoretical justification. Casper and Card (2017) and other victimization researchers argue for two components of victimization (relational and overt components that include physical and verbal components)—a bipartite model. Author1 et al. (2011) and other researchers who assess both bullying and victimization argue that there are three parallel components (physical, relational, and verbal) of both bullying and victimization—a tripartite model. In contrast to these arguments for multi-component approaches to victimization (bipartite or tripartite models) in their influential *Annual Review* summary of bullying and victimization research, Juvonen and Graham (2014) concluded that “Because the different forms of bullying (physical, verbal, and relational; or direct and indirect) tend to be highly correlated in research, there may be only limited theoretical payoff of more studies that seek to identify the unique correlates of each form” (p. 175). However, Juvonen and Graham also noted that different victimization components are relevant in relation to gender differences, age-related developmental differences, characteristics of bullies (e.g., social skills and self-regulation), and the design of interventions. Hence, Juvonen and Graham's reluctance to encourage research on different victimization components apparently stems from researchers' inability to measure appropriately and reliably discriminate among the different victimization components, a major focus of the present investigation.

The need for good measurement. At the heart of this issue is the need for good measurement. However, the lack of psychometrically strong measures of the multiple dimensions of victimization is a widely recognized, critical limitation of victimization research (see reviews by Card & Hodges, 2008; Casper & Card, 2017; Gumpel, 2008; Author1 et al., 2011; Author7 et al., 2008; Rigby, 2007; Roland, 2000) is. Thus, Author1 et al. (2011, p. 701) concluded, “existing research posits multiple dimensions of bullying and victimization, but has not identified well-differentiated facets of these constructs that meet standards of good measurement: goodness of fit, measurement invariance, lack of differential item functioning, and well-differentiated factors that are not so highly correlated as to detract from their discriminant validity, and substantive usefulness in school settings.” This poor quality of measurement and inconsistent use of different instruments also undermine systematic and meta-analytic victimization research reviews.

Peer victimization is often depicted as a global construct despite theory and some research demonstrating verbal, relational, and physical components of victimization and parallel bullying factors. In addressing this issue, Author1 et al. (2011) demonstrated that responses to their six-factor Adolescent Peer Relations Instrument (verbal, relational, and physical facets of bullying and victimization) had strong psychometric properties that generalized over gender, age, and measurement occasion. Similarly, the six-factor Student Survey of Bullying Behavior (Varjas et al., 2006; Varjas et al., 2009) includes 24 items to

measure verbal, relational, and physical components of bullying and victimization. In each case, students responded to separate measures designed to measure three victimization components (being the recipient of bullying behaviors) and parallel items that measured bullying (perpetrator of bullying behaviors). Hence, there is clear evidence that three components of victimization can be identified with appropriate measurement tools. Furthermore, not surprisingly, these three components of victimization parallel the three corresponding components of bullying.

The need for appropriate statistical tools. A common concern in victimization research is that even when multiple victimization components are identified, they are so highly correlated that they cannot be differentiated (Juvonen & Graham, 2014). Part of the problem is the quality of measurement, but there is also an issue with the statistical tools. Most previous factor analyses in victimization studies are based on traditional confirmatory factor analysis (CFA) models. However, Author1 et al. (2011) noted these traditional CFA models that do not allow cross-loadings of items (the typical independent clusters assumption of CFA) are likely to provide a poor fit to the data and positively bias correlations among factors, detracting from support for discriminant validity. For this reason, they argued for the importance of exploratory structural equation modeling (ESEM; Author1 et al., 2014; Author1, Guo et al., 2020) to evaluate the dimensionality of bullying and victimization, and their relations to well-being. Hence, not only did their ESEM improve the goodness of fit, but it also resulted in systematically lower correlations among the three components (correlations of .81 to .84 for CFA, .43 to .52 for ESEM). Notably, both CFA and ESEM models identified the same three factors (relational and verbal, as well as physical victimization) for both the bullying and victimization responses. However, the ESEM model fit the data better, better differentiated in the multiple components, and resulted in more differentiated relations with antecedents and consequences of bullying. This is a conceptually important contribution to victimization research. Specifically, it contributes to demonstrating the discriminant validity of the multiple components of victimization with critical antecedents and consequences of victimization.

A unidimensional perspective of victimization. Many applied victimization studies rely on a global or unidimensional approach, but typically without a theoretical justification. For example, in their meta-analysis on the consequences of victimization, Schoeler et al. (2018) noted that they included only one broad measure of victimization because only a few studies even considered different components. Similarly, Walter's (2020) meta-analysis noted that most studies considered victimization as an umbrella term that did not differentiate between different components. P. K. Smith et al. (2019) evaluated victimization based on data from five cross-national surveys—including an earlier cohort of the OECD's Programme for International Student Assessment (PISA 2015) data. However, they noted that they could not evaluate the dimensionality issues as victimization was represented as a single global component in each of these surveys. For example, the PISA cross-national studies recognize that victimization can be physical (hitting, punching, and kicking), verbal (name-calling and mocking), and relational (spreading gossip and engaging in other forms of public humiliation, shaming, and social exclusion; OECD, 2019a). However, the PISA survey contains only six items. Furthermore, in the PISA database, victimization is represented by a single global component based on responses to only three of the six items that are available in the database. Most research using PISA data uses only this global score, including the P. K. Smith et al. (2019) study. In summary, a unidimensional perspective of victimization is widely used. However, it is important to distinguish between common practice and best practice.

Juxtaposition between victimization bipartite and bullying tripartite models. Bipartite models of victimization are the basis of widely cited meta-analyses of victimization research by Casper, Card, and colleagues (e.g., Card et al., 2008; Casper et al., 2020; Casper & Card, 2017). Consistent with our perspective, they argued against a unidimensional perspective of victimization. Rather, they contended that clarifying the extent to which different victimization components are distinct phenomena has important implications for theory, practice, and intervention. The Wu et al. (2015) meta-analysis also found that emotional maladjustment (e.g., depression, anxiety, loneliness) was more strongly correlated with relational victimization than overt victimization. However, both these meta-analyses and much of the research that they considered focused on two components, rather than the three components, of victimization (also see Crick & Grotpeter, 1996; Giesbrecht et al., 2011). In each case, verbal victimization was combined with physical victimization, and contrasted with relational victimization. We agree that it is essential to consider multiple components of victimization. However, in arguing for a bipartite model of victimization, they reject the tripartite model.

In contrast to victimization research, the tripartite model (with verbal, relational, physical components) is widely recognized in bullying theory and research (e.g., Author1 et al., 2011; OECD, 2019a; Woods & Wolke, 2004; Wu et al. 2015). This tripartite model is also typical in more general

aggression research reviews (e.g., Archer, 2004). Following from Author1 et al. (2011) and others (e.g., Varjas et al., 2006; Varjas et al., 2009), we extend traditional victimization studies by including verbal victimization as a separate component. This issue is critical because, in contrast to victimization research, bullying research that evaluates multiple components routinely considers a tripartite model based on all three components. Studies have empirically highlighted the usefulness and advantages to research and theory of using tripartite (verbal, physical, and social) models of bullying (Marengo et al., 2019). Because bullying and victimization are two sides of the same coin, this fundamental difference in the conceptualization of bullying and victimization makes little sense. This difference in the number and nature of victimization components that are considered in bullying research and in victimization research hinders progress in their integration, and, more importantly, the development of interventions based on both areas of research. In victimization research, multiple components of victimization vary substantially in terms of antecedents and consequences of victimization (Author1 et al., 2011). Hence, failure to differentiate among multiple components of victimization impairs understanding of victimization and the development of multifaceted interventions that address the different components. Thus, we reject the emphasis on a bipartite model used in victimization research. Instead, we argue for the use of a tripartite model of victimization, as well as bullying, and provide empirical support for this contention.

Anti-Bullying Attitudes

Anti-bullying attitudes as an outcome measure. Here In the present investigation, we emphasize the importance of anti-bullying attitudes. Anti-bullying attitudes are increasingly recognized as an outcome in intervention studies and a critical component of interventions designed to reduce victimization (e.g., Boulton & Hawker, 1999; Jiménez-Barbero et al., 2016; Author1 et al., 2011; Merrell et al., 2008; OECD, 2019a; Author7 et al., 2008; Salmivalli et al., 2005; Stevens et al., 2000). A lack of anti-bullying attitudes leads to an increase in the likelihood of bullying. More recently, OECD (2019) similarly argued that a better understanding of anti-bullying attitudes “may help educators and policy-makers in their efforts to develop effective bullying prevention and intervention programmes” (OECD, 2019a, p.54). Boulton et al. (2002) also argued for the importance of anti-bullying attitudes, but lamented the lack of research about these attitudes.

Anti-bullying attitudes provide an index of the unacceptability of bullying behaviors at the levels of individuals, groups, and whole countries, allowing us to examine cross-national differences in anti-bullying attitudes in the present investigation. Thus, for example, the OECD (2019) reported that 88% of students from OECD countries agreed that it was good to help students who were unable to defend themselves and wrong to join in the bullying. In addition, anti-bullying attitudes are stronger for girls (Author1 et al., 2011; OECD, 2019a; Salmivalli & Voeten, 2004) and for students from higher SES families (OECD, 2019a). Of particular relevance to the present investigation is the relation of anti-bullying attitudes to victimization.

Anti-bullying attitudes and their relation to levels of victimization. Boulton et al. (2002) found that bullies reported more pro-bully and lower pro-victim attitudes (also see Olweus, 1984; Slee & Rigby, 1993), and suggested that it would be fruitful for future studies to address the link between bullying attitudes and behavior in greater detail. However, they did not consider the relations between victimization and anti-bullying attitudes that are the focus of the present investigation.

Logically, it might seem that those who suffer the most from victimization would have the most anti-bullying attitudes. Indeed, the OECD (2019a) focused on this relation as one of their report's main highlights. However, based on their global measure of victimization, the OECD reported that “students who were not frequently bullied were more likely to report stronger anti-bullying attitudes” (OECD, 2019a, p. 46). Thus, students who suffered high levels of victimization had weaker – not stronger – anti-bullying attitudes. Although emphasizing the importance of anti-bullying attitudes, the OECD report offered no theoretical explanation for why victims of bullying have weaker anti-bullying attitudes or how this paradoxical relation between victimization levels and anti-bullying attitudes might be related to intervention strategies. Indeed, they did not even suggest that these findings were surprising or paradoxical in relation to expectations.

Author1 et al. (2011) had previously considered correlations between the three components of victimization and bullying (physical, relational, and verbal), and attitudes toward victims and bullies. Pro-bully and pro-victim factors correlated negatively with each other. Consistent with the subsequent OECD (2019a) findings, physical victimization positively correlated with pro-bully attitudes and negatively with pro-victim attitudes. However, this pattern of relations was only evident for the physical component of victimization. The correlations with pro-bully attitudes were close to zero for the relational and verbal components of victimization, and were slightly positive – not negative -- for pro-victim attitudes.

However, unlike the PISA (OECD, 2019a) study, they recognized the result as paradoxical and offered a theoretical explanation.

Author1 et al. (2011) proposed that victims of physical bullying, unlike victims of verbal or social bullying, identify more strongly with bullies than victims. Providing empirical evidence for their theoretical explanation, they showed that victims of physical bullying not only had negative attitudes toward victims, but they also had lower levels of self-esteem and self-concept, higher levels of depression, and an external locus of control. Author1 et al. also asked respondents what they would do when encountering a bullying situation not involving themselves. The physical victimization factor (but also the physical bully factor) correlated positively with actively reinforcing the bully, and correlated negatively with actively advocating for the victim. Thus, when victims of physical bullying encountered a bullying situation not involving themselves, they were more likely to advocate for the bully than the victim, and might become actively involved as a bully. Furthermore, longitudinal causal-ordering models showed that victimization and bullying were reciprocally related particularly for the physical components. Thus, victims of physical bullying subsequently became perpetrators of physical bullying, and vice versa (Author1 et al., 2011). Hence, it appears that victims of physical victimization identify more strongly with bullies than victims, and become physical bullies in the future. In the present investigation, we extend this research to evaluate cross-national differences in relations between victimization and anti-bullying attitudes and how they vary across different victimization components.

Cross-national Generalizability: An Alternative to Meta-Analytic Tests of Generalizability

Cross-national and meta-analytic approaches to generalizability. Cross-national research seeks to test the validity of existing theories in other cultures, to investigate new perspectives in diverse cultural contexts, and to propose universal principles "in order to generate more nearly universal psychology, one that has pan-human validity" (Segall et al., 1998, also see Author1 et al., 2014; Author1 et al., 2020; Author4, 2009; also see Supplemental Materials, section 1 [SM1]). Cross-national and meta-analytic approaches to generalizability share many features—strengths as well as limitations. In particular, both are limited by the quality of the data and the samples' representativeness—the multiple studies in a meta-analysis and the multiple countries in the cross-national research (Author1, Author3, et al., 2020; Author1, Author3, et al., 2020). However, an over-representation of Western Educated Industrialized Rich Democratic (WEIRD) societies (Hendriks et al., 2019) presents significant challenges to generalizability based on meta-analyses and systematic reviews that – like victimization research -- are substantially based on WEIRD samples. In contrast, cross-national approaches start with large, nationally representative samples from many different countries. In this respect, cross-national generalizability provides a viable alternative to meta-analysis.

Cross-national studies of victimization. Victimization is an international phenomenon, but almost all published research comes from the USA and a few other OECD, developed countries (e.g., Casper et al., 2020; Casper & Card, 2017; Moore et al., 2017; P. K. Smith et al., 1999; P. K. Smith, et al., 2019). This provides a weak and potentially biased basis for evaluating the cross-national generalizability that necessarily permeates systematic and meta-analytic reviews of victimization research. Here we present a cross-national approach to address this issue using multilevel modeling and provide a viable alternative to current meta-analyses based mostly on a few developed, OECD countries.

P. K. Smith et al. (2019; also see SM2) addressed this issue by evaluating the consistency of gender differences in victimization and bullying across five cross-national surveys—including an earlier version of PISA data (PISA2015). However, they did not fully evaluate the cross-national differences in bullying and victimization, nor the multiple components of victimization and bullying. Following from P. K. Smith et al. cross-national study, it is important to evaluate the cross-national generalizability across multiple victimization components for levels and gender differences in victimization components.

Alfonso-Rosa et al. (2020) analyzed data from the global school-based Student Health Surveys from 82 largely non-industrialized countries based on a single, dichotomous item. They found that country-level differences in victimization correlated negatively with the United Nations Human Development Index (HDI; also see related work by Due et al., 2009, and Elgar et al., 2009). Following from this finding, we pursue the finding that levels of victimization vary as a function of country-level development—including the use of HDI as a correlate of cross-national differences in victimization.

Addressing All Three Limitations

In the present investigation, we address all three of these limitations in current victimization research through the evaluation of cross-national differences in the three components of victimization, anti-bullying attitudes, and their relation to gender, mental health, and well-being based on the PISA2018 data (large, nationally representative samples of 15-year-olds from 77 countries). We demonstrate that

failure to disentangle the multiple components of victimization has important substantive implications for understanding how the multiple components of victimization differentially relate to well-being and for conclusions about the cross-national generalizability of victimization findings. We show that paradoxical relations between anti-bullying attitudes have cross-national generalizability, but differ as a function of victimization components. We further demonstrate that cross-national differences in victimization levels vary as a function of country-level development (and OECD status), gender, and the specific component of victimization.

Antecedents and Consequences of Victimization

Our focus in the present investigation is to evaluate the discriminant validity of the three (relational, verbal, and physical) multiple components of victimization—how they are differentially related to critical antecedents and victimization consequences. This is similar to Casper and Card's (2017) approach in their meta-analysis to support the differentiation between two components of victimization, but we extend those findings to include verbal victimization as a separate component of victimization. Because our research is cross-sectional, we avoid the implication of the causal ordering based on these correlates. Indeed well-being can be a precursor of victimization, a consequence of victimization, or reciprocally related to victimization (e.g., Drazdowski et al., 2019; Fekkes et al., 2006; Karlsson et al., 2013; Leadbeater & Hoglund, 2009; Author1 et al., 2011; Author1, Author9, et al., 2016; also see meta-analysis by Walters, 2020). Nevertheless, it is reasonable to assume that some background covariates (e.g., gender, age, year in school, socioeconomic status) are antecedents and that it is useful to determine how they relate to victimization outcomes.

Victimization and Gender

Gender is one of the most frequently studied correlates of bullying and victimization and a topic of lively debate (Juvonen & Graham, 2014). In their meta-analysis, Casper and Card (2017) reported that gender differences in victimization are mixed due in part to inconsistent reporting of the multiple components of victimization. They found that boys were more likely to experience overt victimization (including physical and verbal components). Although girls experienced relational bullying more than physical bullying, gender differences in relational bullying were small. Author1 et al. (2011) found that across the adolescent period, boys experienced much more physical victimization ($ES = -.30$) and slightly more verbal victimization ($-.11$). However, boys did not differ significantly from girls on relational victimization. In a meta-analysis of aggression rather than victimization per se, Archer (2004) reported that physical aggression is greater for males than females across cultures and age groups, showing a peak between 20 and 30 years of age. Overall, gender differences were higher for physical aggression, smaller for verbal aggression, and negligible for relational aggression. In their systematic review of gender differences in large, cross-national surveys, P. K. Smith et al. (2019) reported that boys experienced more victimization than girls; these differences were reasonably consistent across age and year of data collection. However, as already noted, due to the use of a single, global representation of victimization in these surveys, P. K. Smith et al. could not distinguish between the different components of victimization and associated gender differences. Nevertheless, P. K. Smith et al. (2019) noted important directions for further research based on their review of cross-national gender differences in victimization. These included a more systematic evaluation of cross-national gender differences and how they relate to country-level characteristics (level of development, educational systems, cultural values), anti-bullying attitudes and norms, and gender-specific interventions. Here we extend the P. K. Smith et al. study, pursuing directions that they noted required further research.

Victimization and Well-Being

Victimization is associated with higher depression levels, anxiety, low self-esteem, loneliness, and sadness (Kochel et al., 2012; Livingston et al., 2019; Author1 et al., 2011; Rigby & Cox, 1996). The OECD (2019a) reported that in most countries, victims were more likely to feel sad, scared, and unsatisfied with their lives than students who were not victimized. The direction of this difference was consistent across nearly all countries. Thus, victimization is systematically related to positive and negative indicators of mental health and well-being.

Our focus is on the pattern of results—the extent to which the multiple components of victimization are differentially related to well-being. Teachers, school counselors, practitioners, and victims themselves, perceive physical victimization as the most severe form of victimization (Chen et al., 2015; Craig et al., 2000; Jacobsen & Bauman, 2007; Yoon & Kerber, 2003). However, Author1 et al. (2011) demonstrated that well-being was more correlated with verbal and relational components of victimization than the physical component. They found, for example, that depression and internalization

of anger correlated more highly with verbal ($r = .38$ & $r = .32$) and relational ($r = .40$ & $r = .33$) than with physical ($r = .26$ & $r = .19$) victimization.

The Wu et al. (2015) meta-analysis also found that relational victimization was more strongly related to emotional maladjustment (e.g., depression, anxiety, loneliness) than was overt (physical and verbal) victimization. In their meta-analysis, Casper and Card (2017) similarly reported that compared to physical victimization, relational victimization in adolescence correlated more strongly with internalizing problems (sadness, worthlessness, depression, worry, fear). In contrast, physical victimization was less associated with these internalizing problems. Casper et al. (2020) noted that particularly relational victimization correlated negatively with peer acceptance and sense-of-belonging, and positively with peer rejection. However, as noted earlier, these meta-analyses combined physical and verbal victimization; this might have reduced the distinctiveness of pattern of relations. Indeed, the Author1 et al. (2011) study suggested that patterns of relations for verbal victimization might be more similar to those for relational victimization than to those for physical victimization.

In summary, there is a reasonably consistent pattern during adolescence of well-being correlating more negatively with relational than physical components of victimization. However, there is insufficient evidence for verbal victimization, and how these relations between well-being and multiple victimization components generalize across different cultures. Nevertheless, this differentiated pattern of results is important because many think of victimization as primarily physical victimization. As a consequence, physical victimization is the focus of many interventions and anti-bullying policies. However, it appears that relational victimization is most detrimental to well-being and mental health than physical victimization. Furthermore, there is insufficient knowledge about the effects of verbal victimization on well-being.

The Present Investigation

Following previous research, we evaluate cross-national differences and generalizability using PISA2018 data (large, nationally representative samples from 77 countries). This cross-national approach has many advantages compared to traditional narrative literature reviews, systematic reviews, and meta-analyses. This is especially true for victimization research that is almost entirely based on a few OECD countries, particularly the USA. Extending previous meta-analyses of victimization research, we consider a much more diverse sample of developing as well as developed countries. Extending previous systematic reviews and meta-analyses, we evaluate how cross-national differences in victimization vary across the three components (physical, relational, verbal), anti-bullying attitudes, and gender. Furthermore, following from Alfonso-Rosa et al. (2020) and P. K. Smith et al. (2019), we related country-level differences in victimization to country-level indicators of development (e.g., OECD status, HDI and country-average measures of education, academic achievement, and SES), good and bad behavior (e.g., corruption, homicide, peace), national efforts to develop anti-bullying policy, and cultural differences.

We begin by positing an a priori a set of models based on the victimization literature (e.g., Author1 et al., 2011). Alternative models (see Figure 1) differ in the number of victimization factors and the estimation procedure (CFA or ESEM). We then evaluate victimization in relation to anti-bullying attitudes, gender, well-being, and cross-national generalizability (see Appendix for a description of variables considered). Based on these broad aims, we posit four research hypotheses where there is a sufficient basis for making a priori, directional predictions based on theory or prior research). We pose two additional research questions concerning cross-national generalizability, where there is insufficient information to make a priori, directional predictions, but are nevertheless important issues.

Research Hypothesis 1 (Dimensionality)

We begin by testing five alternative structural models (see Figure 1) based on our literature review.

Model 1: a one-factor model with only a global victimization factor that is consistent with how it measured in many applied victimization studies;

Model 2: a two-factor CFA model with physical and relational factors (with verbal victimization as part of the physical factor) that is consistent distinctions made in classic meta-analysis reviews of victimization research (e.g., Casper & Card, 2017);

Model 3: a two-factor CFA model with physical and relational factors (with verbal victimization as part of the relational factor) to test the Casper and Card (2017) assumption that the verbal component should be part of the physical component rather than the relational component;

Model 4: a three-factor CFA model with separate physical, relational, and verbal factors, to test the claim that three factors are needed;

Model 5: three-factor ESEM model with separate, physical, relational, and verbal factors to test the claim (Author1 et al., 2011) that ESEM provides a better fit to the data and better differentiation of the factors.

We hypothesize that Model 5 (Figure 1) will provide the best fit to the data. Thus, Model 5 will fit the data better than alternative models positing one victimization factor (Model 1) or two victimization factors (Models 2 and 3). Furthermore, Model 5, based on ESEM, will perform better than the CFA model (Model 4) that also posits three factors. Following Author1 et al. (2011), we posit that ESEM (Model 5) provides better differentiation among the three factors (i.e., smaller correlations) than the corresponding CFA (Model 4). Additional support for Model 5 – and the need to differentiate between the multiple factors – is posited to come from the differentiated relations of the three factors with gender (Research Hypothesis 2), anti-bullying attitudes (Research Hypothesis 3), well-being (Research Hypothesis 4), and cross-national differences (Research Questions 1 and 2).

Research Hypothesis 2 (Gender Differences)

Gender differences vary systematically across the three components of victimization. Compared to boys, girls will experience less physical and verbal victimization. However, gender differences will be negligible for relational victimization. Consequently, support for Research Hypothesis 2 also supports Research Hypothesis 1.

Research Hypothesis 3 (Anti-Bullying Attitudes)

Following Author1 et al. (2011), we hypothesize that physical victimization will be negatively related to anti-bully attitudes. Thus, the more a student experiences physical victimization, the weaker their anti-bullying attitudes will be. However, this relation with anti-bullying attitudes will be limited mostly to the physical component of victimization, not the verbal and relational components (see Author1 et al.'s theoretical rationale of physical victims self-identifying more with bullies than other victims). Hence, support for Research Hypothesis 3 also supports Research Hypothesis 1. Also, consistent with other research (e.g., Author1 et al., 2011; Rigby and Slee, 1991; Salmivalli & Voeten, 2004), we expect anti-bullying attitudes to be substantially stronger for girls than for boys.

Research Hypothesis 4 (Well-Being)

In the next stage of our analyses, we considered positive and negative well-being indicators (positive/negative affect, fear of failure, overall life satisfaction, sense-of-belonging, and eudaimonia). Following from Author1 et al. (2011), we predict that the correlations with victimization (negative for positive outcomes, positive for negative outcomes) will be larger for relational and verbal victimization than for physical victimization. In particular, following from Casper et al. (2020; also see Goldweber et al., 2013), we expect sense-of-belonging to be most negatively related to relational victimization. We further hypothesize that this pattern of results will be relatively robust (i.e., mostly unchanged) after controlling for a set of background covariates (i.e., SES, OECD status, achievement, gender, age, year in school, home language, repeating a year in school, emotional support from parents, changes in educational circumstances).

Research Question 1 (OECD/Non-OECD Differences)

We note that most previous research and associated meta-analyses are based on a few industrialized, OECD countries. However, a limited amount of research suggests that victimization is higher in less developed, non-industrialized countries (e.g., Alfonso-Rosa et al. 2020; Craig et al. 2009; OECD, 2019a). However, there is little research on how cross-national differences vary across the three components of victimization, anti-bullying attitudes, and gender differences in victimization. Given the focus of the PISA research on OECD and non-OECD countries (OECD, 2019a), we first evaluate OECD/non-OECD differences in victimization. Based on previous research, we expect that victimization will be higher in non-OECD countries, but leave as a research question as to how their difference varies for the different victimization components.

The evaluation of cross-national gender differences and the pursuit of gender equality is a major goal of the OECD (e.g., OECD, 2016; 2019b). Hence, it is also relevant to evaluate how gender differences in victimization differ in OECD and non-OECD countries, and how they vary as a function of the multiple victimization components and country.

Research Question 2 (Cross-National Generalizability)

The dichotomous (OECD/non-OECD) variable is only a rough representation of country-levels of development. Furthermore, the OECD's expansion includes some additional countries that are less industrialized than some non-OECD countries. Hence, we sought additional correlates of country-level differences across all 77 countries in the three components of victimization, anti-bullying attitudes, and gender differences. Extending the Alfonso-Rosa et al. (2020) study, we evaluate how HDI and associated indicators of country-level development (country-average academic achievement and SES) correlate with country-level differences in the multiple components of victimization.

For the first time since its inception, PISA2018 collected data on anti-bullying policies at the country level. PISA (OECD, 2019a) specifically noted that the development and implementation of an appropriate policy is a critical ingredient for tackling bullying. More generally, the development of a strong anti-bullying policy and associated governmental legislation is widely recommended as a central component of successful intervention programs (e.g., Bauman et al., 2008; Eslae et al., 1998; P. K. Smith et al., 2008; P. K. Smith et al. 2012; Sullivan, 2010). However, P. K. Smith et al. (2012) reported that substantial differences between schools on the quality of anti-bullying policies were unrelated to bullying and victimization prevalence. In a systematic review, Hall (2017) reported mixed results in the relation between the quality of anti-bully policies and victimization prevalence. However, we know of no previous studies based on cross-national measures of policy development and implementation. Given this broad interest but mixed results, we leave as a research question whether country-level policy development is related to country-level differences in victimization.

We supplement our analyses of country-level correlates of victimization with additional country-level variables of societal indices of good and bad behavior (criminality, corruption, peace) and Hofstede's (2011) six cultural values (power distance index, individualism vs. collectivism, masculinity/femininity, uncertainty avoidance, long/short-term orientation, indulgence/restraint; see Appendix 1 for more information on the definition of these correlates).

These results in relation to Research Question 2 are relevant to expanding the influential social-ecological perspective proposed by Hong and Espelage (2012) to include a cross-national perspective. Extending their social-ecological framework, we explore how country-level differences in anti-bullying attitudes, policies to combat bullying, values, and culture can all influence levels of victimization.

Methods

Samples

The PISA2018 data used here comprise nationally representative samples from 77 countries (594,196 fifteen-year-old students). Students completed tests to assess their knowledge and skills in reading, math, and science. Students also completed a questionnaire assessing student and family background variables, and a variety of psychosocial variables—including measures of victimization. These data are publicly available through the OECD-PISA website (<https://www.oecd.org/pisa/pisaproducts/>), along with extensive documentation, research basis, and psychometric support for the variables and their invariance over the multiple countries. Data were collected using a complex, two-stage sampling design, and constitute nationally representative samples after using the appropriate survey weights provided as part of the public database (OECD, 2019a). We excluded three of the 80 countries in the PISA2018 database for present purposes because data on student victimization were not available from these countries (Israel, Korea, Lebanon, and North Macedonia).

Variables

All variables used in the present study are documented more fully in Supplemental Materials (SM2), where we present factors and items designed to measure each variable and fit indices for different models (SM2; also see OECD, 2019a, for further information on the psychometric properties and extensive documentation for measures available as part of the PISA database).

Victimization

PISA provides six items reflecting the three (relational, verbal, and physical) components of victimization: other students left me out of things on purpose (relational); other students spread nasty rumors about me (relational); other students made fun of me (verbal); I was threatened by other students (physical); other students took away or destroyed things that belong to me (physical); I got hit or pushed around by other students (physical). OECD (2019a) makes available all six items in the PISA database. Nevertheless, OECD (2019a) used only three of these items (other students left me out of things on purpose; other students made fun of me; other students threatened me) to construct a composite variable labeled "being bullied" – a global approach to the representation of victimization. However, we use all six items to evaluate the structure of victimization in competing structural models (see Figure 1).

Anti-Bullying Attitudes

We assessed anti-bullying attitudes with six items (it irritates me when nobody defends bullied students; it is a good thing to help students who can't defend themselves; it is a wrong thing to join in bullying; I feel bad seeing other students bullied; I like it when someone stands up for other students who are being bullied). We posited these items to represent a CFA single factor that did not cross-load with the victimization factors.

Positive and Negative Indicators of Well-Being

Scales and wording of items used to represent mental health and well-being constructs are presented in Appendix 1. Positive and negative indicators of well-being are represented by individual items and scale scores (Warm estimates of multi-item factors provided in the PISA database; see OECD, 2019a). Single-item variables were sets of positive (happy, lively, proud, joyful, cheerful) and negative (scared, miserable, afraid, sad) affects (also see Karademas, 2007, discussion on 'positive' and 'negative' well-being). Students were asked: thinking about yourself and how you normally feel, how often do you feel each of these positive and negative items. In the PISA database, only three of the positive-affect items (joyful, cheerful, happy) were combined to form a construct labeled "subjective well-being." However, because the negative-affect items did not fit into a single factor, OECD did not include a composite variable of negative affect (OECD, 2019a). However, for present purposes, we considered each of the nine affects as separate outcomes. We also included additional scale scores of well-being constructs: sense-of-belonging (e.g., I feel like I belong at school, I feel lonely at school), fear of failure (e.g., when I am failing, I am afraid that I might not have enough talent; a negative affect), eudaimonia (e.g., my life has a clear meaning or purpose; meaning in life, a condition of human flourishing from Aristotelian ethics), and a single-item rating of overall life satisfaction.

Background/Demographic Variables

In the present investigation, we also considered a diverse set of covariates available in the PISA database to evaluate how controlling for them influenced relations between victimization and outcomes, particularly well-being. These covariates included gender, age, year in school, SES and achievement (at the individual student, the school, and country levels), OECD vs. non-OECD (a simple dichotomous variable), number of changes in schools, perceived parental support, and home language (see Appendix 1). SES in PISA2018 (see OECD 2019a) is a composite index of economic, social, and cultural status based on parents' highest occupational status, highest educational level of parents, and home possessions (including educational resources and number of books). We considered a total achievement score reflecting the average achievement in reading, math, and science (see OECD, 2019a). For present purposes, we aggregated SES and achievement to the level of the school (L2) and country (L3) and standardized ($M = 0$ and $SD = 1$) responses separately at each level.

Statistical Analyses

Factor Analyses

We tested the factor structures in Models 1 – 5 (Figure 1) using CFA (Models 1-4) and ESEM (Model 5). Following Author1 et al. (2011), we note that ESEM integrates the best aspects of CFA/SEM and traditional EFA, and provides confirmatory tests of a priori factor structures. It incorporates nearly all the features of CFA and SEM analyses. We evaluated goodness-of-fit with fit indices that are relatively sample-size independent, using standard goodness-of-fit criteria (Hu & Bentler, 1999; Author1 et al., 2004; Author1 et al., 1996). Population values of Tucker-Lewis index (TLI), and comparative fit index (CFI), vary along a 0-to-1 continuum; values greater than .90 and .95 typically reflect acceptable and excellent fits to the data, respectively. Values smaller than .08 and .06 for the root mean square error of approximation (RMSEA) support acceptable and good model fits, respectively. The Standardized Root Mean Square Residual (SRMR) has a lower bound of zero, and values less than .08 are typically considered an acceptable fit (Hu & Bentler, 1999). However, Author1 et al. (2004) emphasized that these cut-off values constitute only rough guidelines only, rather than "golden rules."

Statistical Analyses

All analyses were done with Mplus 8 (Muthén & Muthén, 2008-18) using the robust maximum likelihood estimator (MLR), which is robust against violations of normality assumptions. Here, to make full use of students' data with missing responses, we applied the full information maximum likelihood method (FIML; Enders, 2010). FIML results in trustworthy, unbiased estimates for missing values (Enders, 2010). We used the Mplus complex design option to adjust standard errors for the nesting of students within schools, and schools within countries (Muthén & Muthén, 2008-18).

In the present investigation, the sample sizes are so large that standardized effect sizes (ESs) as small as .01 are statistically significant, even if too small to be substantively meaningful. There is no explicit agreement on what constitutes meaningful ESs. However, Else-Quest et al. (2010; Hyde, 2005) argued that ESs < .10 are negligible and close to zero, even if statistically significant, and that ESs of .20, .50, and .80 are typically considered small, medium, and large, respectively (also see Cohen & Cohen, 1988). However, arguing for a gender similarity hypothesis, Hyde (2005) also notes that most gender differences are small or close to zero. Hence, particularly relative to research on gender differences, ESs > .10 and larger might be considered meaningfully large compared to the population of gender differences. Also, for present purposes (Research Hypotheses 2 and 3, but also Research Questions 1 and 2), we are

particularly interested in the differences in the multiple components of victimization as well as the absolute values of the differences.

We began by testing the a priori models based on the victimization literature (see Figure 1) to test Research Hypotheses 1 (dimensionality), 2 (dimensionality in relation to gender differences), and 3 (dimensionality in relation to anti-bullying attitudes). To test Research Hypothesis 4, we added to these models a set of well-being indicators. We evaluated results based on latent correlations relating the victimization factors to these correlates and controlling these correlations for covariates.

Next, we pursued Research Question 1 with SEM contrasting four groups in a latent-variable ANOVA; combinations of OECD/non-OECD countries (1 = OECD, 0 = Non-OECD) and female gender (1 = female, 0 = male). Using the Mplus model constraint function, we constructed contrast variables to represent the main effects of OECD and gender, the OECD-by-gender interaction, and the simple main effects for each interaction.

In pursuit of Research Question 2, we conducted a multigroup analysis in which the country was the grouping variable. For this model, factor loadings and intercepts were constrained to be invariant over countries, allowing us to evaluate country-level means, and factor correlations were constrained to be proper (i.e., less than ± 1.0). The fit of this highly constrained model was good (RMSEA = .044; CFI = .947; TLI = .942; SRMR = .041). We used this model to construct forest plots, graphs of values for each country representing the three victimization factors, and corresponding gender differences. Finally, we related these country-level differences to country-level correlates (see Research Question 2).

Results

The Dimensionality of Victimization (Research Hypothesis 1)

In the PISA 2018 survey, victimization is represented by six (three physical, two relational, one verbal) items reflecting physical, verbal, and relational components of victimization. The alternative models (Figure 1) vary only in the proposed structure (dimensionality) underpinning the victimization items. In this section, we evaluate this issue of dimensionality (Research Hypothesis 1), concerning goodness-of-fit (*SM3*) and factor structure (factor loadings and correlations; Table 1).

One Victimization Factor (Global, Unidimensional Models)

Model 1 (Figure 1) posits only one victimization factor consistent with the global victimization factor often used in applied research. It provides a reasonable fit to the data by absolute standards (e.g., CFI = .965, TLI = .942; see *SM3*), but one that is not as good as the subsequent models positing two or three factors. All six victimization items load substantially on this global victimization factor (Table 1).

Two Victimization Factors (Bipartite Models)

Model 2 (Figure 1) posits two factors, the typical representation of victimization in meta-analyses. The factors represent relational victimization and a physical factor that combines the physical and verbal components (sometimes referred to as direct or overt victimization). The fit of Model 2 (CFI = .968, TLI = .939 see *SM3*) is similar to Model 1. However, the correlation between the two latent factors (Table 2) is so high ($r = .95$) that the two factors cannot be readily distinguished. This correlation, approaching 1.0, explains why the fit of Model 2 is similar to that of Model 1.

Model 3 (Figure 1) also posits two factors, but the single verbal item loads on the relational factor rather than the physical factor. A comparison of Models 2 and 3 tests the traditional typical representation of victimization in meta-analyses (Model 2, Figure 1). The fit of Model 3 (CFI = .986, TLI = .974 see *SM3*) is better than Models 1 or 2. Although the correlation between the two factors is still very high ($r = .89$, Table 2), these two factors are slightly better differentiated than the corresponding two factors in Model 2.

Three Victimization Factors (Tripartite Models)

Model 4 (Figure 1) posits three victimization factors based on CFA. Model 4 is consistent with our claim that there are three victimization factors (verbal, as well as physical, and relational) rather than two. The fit of Model 4 (CFI = .988, TLI = .975) is good and marginally better than Model 3. Importantly, however, correlations among the three factors ($r = .66 - .92$) are very high, detracting from the three factors' differentiability.

Model 5 posits three victimization factors based on ESEM. Consistent with Hypothesis 1, the fit of Model 4 (CFI = 1.00, TLI = .999; see *SM3*) is very good, and better than for Models 1-4. Although the correlations among the factors are still high ($r = .57 - .77$), they are substantially lower than for the other models. In particular, the correlation between the relational and physical factors ($r = .62$) is substantially lower than the corresponding correlation in Model 4 ($r = .92$) and the other models. Thus Model 5 provides the best fit to the data and also demonstrates the best differentiation among the victimization factors). In summary, there was good support for Model 5 and Hypothesis 1.

Victimization: Gender Differences and Relations to Anti-Bullying Attitudes (Research Hypotheses 2 and 3)

In this second set of analyses, we added gender and anti-bullying attitudes to the five models considered in Table 2. Factor loadings relating victimization items to their factors are nearly identical to those in Table 1 (see *SM4*; also see fit indices in *SM3*). Again, each of the models' fit is good, although the fit of Model 5 is still the best. Hence, we mainly focus on relations among the variables (Table 2). Substantively our focus is on the patterns of correlations used to test Hypotheses 2 and 3. We also note that because of the large sample size, standard errors for all correlations are less than .006, so that even very small correlations are highly significant. For this reason, we focus on the relative sizes of relations rather than statistical significance or estimates of uncertainty per se.

Gender Differences in the Three Victimization Factors (Research Hypothesis 2)

Consistent with Research Hypothesis 2 and previous research, boys tend to be more victimized than girls in all five models (Table 2). Also consistent with predictions, boys experience more physical and, to a lesser extent, verbal victimization, but gender differences are small for relational victimization.

This clear pattern of gender differences in Model 5 is blurred in each of the other models, particularly for Models 1-3. We note that results for Model 1, based on a global victimization factor, are consistent with the typical finding that girls are less victimized than boys. However, this model fails to show how this gender difference varies for different victimization components. Thus, support for Hypothesis 2 is stronger—and gender differences are more differentially related to the victimization factors—in Model 5 than any of the other models.

Anti-Bullying Attitudes (Research Hypothesis 3)

Consistent with Hypothesis 3 (Model 5), anti-bullying attitudes correlated negatively with physical victimization ($r = -.17$), but are uncorrelated with relational victimization ($r = .01$) and verbal victimization ($r = .00$). Thus, physically victimized students have weaker anti-bullying attitudes. Although seemingly paradoxical, this pattern follows from Author1 et al. (2011) and Research Hypothesis 3 (see earlier discussion of Author1 et al.'s (2011) theoretical rationale of physical victims identifying more with bullies rather than other victims). However, this distinct pattern of relations is blurred in each of the other models. Model 1 is consistent with the OECD (2019a) finding that victimization is negatively related to a global victimization factor, but fails to show how this relation varies for different victimization components. Thus, support for Hypothesis 3 is stronger—and relations with anti-bullying attitudes and victimization factors are more differentiated—in Model 5 than for any other models.

Also consistent with Hypothesis 3, girls have stronger anti-bullying attitudes (Table 2). Indeed, the size of this gender difference in anti-bullying attitudes is consistently stronger than gender differences for victimization factors in any of the five models.

Multiple Components of Victimization and Well-Being (Research Hypothesis 4)

In the next set of analyses, we added a set of well-being indicators to Model 5. The correlations between victimization and well-being (Table 4) are of substantive interest, but also contribute to the need to consider multiple components of victimization. Also, to facilitate the presentation of the results, we consider results based on negative indicators of well-being (i.e., a lack of well-being) separately from positive indicators (although we tested both in the same model; see fit indices in *SM3*). Again, we focus on the relative size of relations because all standard errors and uncertainty estimates are so small, due in part to the large sample sizes.

Negative Well Being Indicators

The five indicators of negative well-being (scared, miserable, afraid, sad, and fear of failure) are all positively related to all three victimization factors (Table 3). However, the relations are systematically stronger for relational ($M r = .15$) and verbal victimization ($M r = .13$), than for physical victimization ($M r = .04$). The systematically smaller relations between physical victimization and negative well-being are reasonably consistent across the five indicators ($r_s = .02$ to $.08$; $M r = .03$).

Relational victimization is more strongly related to negative well-being indicators than physical victimization (Table 3). However, this pattern of relations varies across the different indicators ($r_s = .10$ to $.18$). In particular, relational victimization is more correlated with feeling sad ($r = .18$) and miserable ($r = .18$), and fear of failure, than with feeling afraid ($r = .10$) and scared ($r = .13$).

Negative well-being indicators also correlated more strongly with verbal victimization than physical victimization. However, the correlations varied somewhat across the different negative well-being indicators ($r_s = .10$ to $.17$). Verbal victimization was more strongly related to feeling miserable ($r = .17$) and sad ($r = .14$), and fear of failure ($r = .14$), than to feeling afraid ($r = .10$) or scared ($r = .10$).

Positive Well-Being Indicators

The eight indicators of positive well-being (happy, lively, proud, joyful, cheerful, life satisfaction, belonging, and eudaimonia) were negatively related to the victimization factors (Table 3; the one exception is the zero correlation between feeling proud and physical victimization). However, positive well-being indicators are more strongly related to verbal victimization ($M r = -.14$) and relational victimization ($M r = -.18$) than to physical victimization ($M r = -.09$).

Positive well-being is negatively related to physical victimization, but the correlations vary in size across the indicators ($r s = -.19$ to $.00$; $M r = -.09$). Thus physical victimization is most negatively related to a sense-of-belonging ($r = -.19$) and, to a lesser extent, feeling happy ($r = -.12$) and joyful ($r = -.10$). However, it is essentially unrelated to feeling proud ($r = .00$) and eudaimonia ($r = -.02$).

Positive well-being is negatively related to relational victimization, but the correlations vary in size across the indicators ($r = -.36$ to $-.06$; $M r = -.18$). Thus, relational victimization is most negatively related to a sense-of-belonging ($r = -.36$) and, to a lesser extent, feeling happy ($r = -.17$) and life satisfaction, but less correlated with eudaimonia ($r = -.06$) and feeling proud ($r = -.07$).

Positive well-being is negatively related to verbal victimization, but again the correlations vary in size across the indicators ($r = -.25$ to $-.06$; $M r = -.14$). Thus verbal victimization is most negatively related to a sense-of-belonging ($r = -.25$) and, to a lesser extent, life satisfaction ($r = -.16$) and feeling happy ($r = -.13$), but less correlated with feeling proud ($r = -.06$).

Summary of Results for Hypothesis 4

In summary, there is good support for Research Hypothesis 4. Across all the well-being indicators, victimization is positively associated with negative well-being indicators and negatively associated with positive well-being indicators. Also, in support of Hypothesis 4, well-being correlates more highly with verbal and relational victimization than physical victimization. Consistent with expectations, sense-of-belonging has the highest correlation with all three victimization components. However, sense-of-belonging is more correlated with verbal and relational victimization than with physical victimization.

We also evaluated partial correlations controlling a large set of background/demographic variables (i.e., SES, OECD status, achievement, gender, age, year in school, home language, repeating a year in school, emotional support from parents, changes in educational circumstances) posited as antecedents of victimization. Because these partial correlations were nearly the same as correlations without controls, they support the results' robustness (see *SM7*).

Comparison of OECD/ Non-OECD Countries and Gender (Research Question 1)

In PISA data, PISA reports, and much research based on these PISA data, there is a primary focus on the difference between OECD and non-OECD countries. This is important because most victimization research and associated meta-analytic reviews are based mainly on a few OECD countries. Specifically, we evaluated the main effects of female-gender, OECD/non-OECD, and their interaction for the three victimization factors and anti-bullying attitudes. In terms of cross-national generalizability, the main effect of OECD/non-OECD countries and the interaction with gender are of particular interest.

Multiple Components of Victimization

Physical and relational victimization are substantially higher in non-OECD countries. However, verbal victimization is only marginally higher in non-OECD countries. The main effect of gender was substantial for physical victimization, somewhat smaller for verbal victimization, and close to zero for relational victimization (see earlier discussion of results for Research Hypothesis 2).

Although OECD-gender interactions are significant for all three components of victimization, the largest is for relational victimization. Inspection of the latent means and simple main effects (Table 4, also see Figure 2) shows that girls have lower physical and verbal victimization levels than boys in both the OECD and non-OECD countries. However, these gender differences were significantly larger in non-OECD countries. For relational victimization, not even the direction of gender differences is consistent across OECD/non-OECD countries. Thus, relational victimization is significantly higher for girls than boys in OECD countries, but significantly higher for boys than girls in non-OECD countries.

Anti-Bullying Attitudes

Anti-bullying attitudes were substantially stronger in OECD countries than in non-OECD countries, and stronger for girls than boys. However, there were also gender-by-OECD interactions. Thus, gender differences (more anti-bullying attitudes for girls) were larger in OECD countries than in non-OECD countries. Similarly, OECD/non-OECD differences (more anti-bullying attitudes in OECD countries) were larger for boys than girls.

Cross-National Generalizability and Correlates of Country-Level Differences in Victimization ***Country-to-Country Variation in Victimization***

It is also important to note that there is substantial variation between countries within the OECD and non-OECD classifications. Also, we note that several non-OECD countries have higher industrialization and development levels than some OECD countries. From this perspective, it is relevant to evaluate individual country-level differences. The forest plots (Figures 2 and 3) reflect this between-country variation. Thus, for example, physical and relational victimization tend to be lower in OECD countries. However, there are non-OECD countries where these two components of victimization are low (e.g., China, Belarus, and Croatia), and OECD countries where they are relatively higher (e.g., Latvia, Italy, and Colombia).

Similarly, anti-bullying attitudes tend to be stronger in OECD countries than in non-OECD countries. However, there are non-OECD countries with healthy anti-bullying attitudes (e.g., Singapore and Malta), and OECD countries where anti-bullying attitudes are not so strong (e.g., Latvia, Hungary, Slovak Republic). In contrast to physical and relational victimization and anti-bullying attitudes, there is little systematic difference between OECD and non-OECD countries for verbal victimization. Again, however, there is substantial variation between countries within each of these classifications. In summary, although there are OECD/non-OECD differences overall, there is also variation in victimization scores and attitudes within these two groups of countries.

Correlates of Country-to-Country Differences

Given the sizable country-to-country variation (Figures 2 and 3; also see SM8 and earlier discussion of Research Question 2), we also related country-level differences to country-level correlates (Table 5). To facilitate presentation, we have divided the correlates into three groups (Table 5) – development indicators, societal indices of good/bad behavior, and Hofstede's (2011) six cultural values. Our primary focus is on relations with a set of four indices of development – particularly HDI (see discussion of Research Question 2; also see SM8).

Development. The four indices of development have a reasonably consistent pattern of relations with country-level differences in levels of victimization. All four indices are positively related to anti-bullying attitudes, negatively correlated with physical victimization and, to a lesser extent, relational victimization. They are less (or non-significantly) correlated with verbal victimization (also see Figure 3).

Gender differences across the four indices are positively related to relational victimization and anti-bullying attitudes. They are less (or non-significantly) related to verbal and physical victimization. Thus, girls experience more relational victimization and have more anti-bullying attitudes in developed countries (see Figure 4). For both levels of victimization and gender differences, the correlations with HDI and L3-Achievement are strongest, but are also evident for L3-SES and OECD.

Societal good/bad behavior and social-ecological perspectives. The set of societal indices reflect country-level indices of good/bad behavior logically related to victimization. Of particular interest is an index based on the OECD survey (OECD, 2019a) of the extent to which countries, and schools within countries, have anti-bully policies. Although positively related to anti-bullying attitudes, this policy index is not significantly related to country levels of victimization or gender-differences in victimization (Table 5).

Perceived corruption is positively related to physical and relational victimization and is negatively related to anti-bullying attitudes. It was also negatively related to gender differences in relational victimization and anti-bullying attitudes. Although somewhat smaller in size, the pattern of correlations with the global peace index is similar to that for corruption, but in the opposite direction. Country-level homicides correlate positively with relational victimization and gender differences in physical bullying, but negatively with anti-bullying attitudes and gender differences in anti-bullying attitudes. Across these four indices, correlations with perceived corruption tend to be the largest. These findings are consistent with a social ecology perspective based on Bronfenbrenner's (1994) ecological framework, as suggested by Hong and Espelage (2012).

Cultural values. We also explored how Hofstede's (2011) six cultural values are related to country-level victimization factors. Power-distance is positively related to victimization (physical and relational) and negatively related to anti-bullying attitudes (Table 5), but negatively related to gender differences in relational victimization and anti-bullying attitudes. Individualism and indulgence tend to have a similar pattern of relations, but in the opposite direction (negatively related to victimization, but positively related to anti-bullying attitudes and gender differences). Uncertainty-avoidance correlates significantly only with levels of verbal victimization. Long-term orientation correlates negatively related to relational and verbal victimization, but positively with gender differences in physical victimization. Across the six cultural values, the strongest correlations are with power distance, and to a lesser extent,

individualism and indulgence. Notable was the finding that masculinity/femininity was not significantly related to any of the victimization scores – not even gender differences.

Controlling HDI. In supplemental analyses (see *SM8*), we also evaluated partial correlations between correlates and victimization, controlling HDI. Although controlling HDI substantially reduced the size of most correlations, many of the correlations remained significant. Even though the four development indicators are substantially correlated, it was interesting to note that gender differences (higher levels of victimization for girls) continued to be higher in OECD countries, even after controlling HDI. Indeed, OECD/non-OECD differences in verbal and physical victimization were only significantly positive after controlling HDI—a suppression effect. There is also a suppression effect for homicides that correlate positively with gender differences after controlling HDI.

Discussion

Victimization is a global problem, but previous research has focused mainly on victimization from a few developed, OECD countries and not differentiated between the multiple (relational, verbal, and physical) components. We used PISA2018 data (large, nationally representative samples of 15 year-olds from 77 countries) to address these issues concerning the dimensionality of victimization, attitudes to bullying behaviors, gender differences in victimization, and relations of victimization to well-being. We organized our research to address four Research Hypotheses and two Research Questions. Broadly, our results support the need to differentiate between the multiple (relational, verbal, physical) components of victimization, and demonstrate why this differentiation is important in understanding the nature of gender differences, anti-bullying attitudes, and cross-national differences. Here we explore the implications of these results for policy, practice, intervention, and directions for further research.

One, Two, or Three Components of Victimization

There is a curious disjuncture in the bullying research literature and the victimization research literature. In both areas, many applied studies are based on a single component of bullying or victimization that confounds their multiple components—a global, unidimensional perspective. For those studies that focus on multiple components, bullying researchers typically focus on the three (relations, verbal, physical) components emphasized here—a tripartite model. However, victimization researchers, and even meta-analytic reviews of this research, typically consider only two components (relational and a physical component that incorporates verbal victimization—a bipartite model. Although all six components (three bullying components, three victimization components) have been identified based on single surveys, CFA studies typically find excessively high correlations among the multiple victimization factors and among the multiple bullying factors. Our results support the contention by Author1 et al. (2011) that bullying and victimization research is better served by applying ESEM rather than CFA models (or the typical practice of not even evaluating the factor structure underpinning their measures).

The rationale underpinning our study is that discriminant validity should be used to establish the usefulness of the multiple victimization components. We demonstrate this by showing that multiple victimization factors are differentially correlated with each other, and with critical outcomes, in a theoretically meaningful way. Hence, consistent with a priori predictions, the three victimization factors are differentiated from each other. However, they are also differentiated in relation to gender differences, anti-bullying attitudes, well-being, background/demographic variables, and cross-national differences. Verbal victimization is more highly correlated with relational victimization than with physical victimization. As a consequence of this confounding of verbal and physical victimization, the correlation between the physical and relational victimization factors based on current victimization research (Model M2) is so high that the factors are nearly indistinguishable. Consistent with this finding, we note that it is typical for manifest scale scores representing these two factors to be correlated greater than .70. Furthermore, if the physical and relational scale scores are correlated .72 (e.g., Casper & Card, 2017), and each factor has a reliability of .80, then the correlation corrected from measurement error is .90.

Our research suggests that correlations among victimization components in much research are inflated because of the failure to consider three rather than two components, and to use ESEM instead of CFA (or scale scores based on the independent-clusters logic of CFA). This is surprising as the need to consider multiple victimization components is recognized in bullying studies and reviews of this research (Author1 et al., 2011; Woods & Wolke, 2004; Wu et al. 2015; Wu et al., 2015; also see ., Archer, 2004).

Gender Differences

Consistent with Research Hypothesis 2, girls experienced less physical and verbal victimization, but boys and girls did not differ much on relational victimization. However, the largest gender differences were the stronger anti-bullying attitudes of girls than boys.

Our study is unique in terms of evaluating the cross-national generalizability of gender differences across the three multiple components of victimization and anti-bullying attitudes. The P. K. Smith et al. (2019) study also evaluated gender differences in victimization based on an amalgamation of cross-national surveys. However, due to the nature of the data available, P. K., Smith, et al. (2019) were not able to look at different victimization components. Also, their primary focus was on the consistency of gender differences across different surveys rather than the generalizability of levels of victimization across developed and developing countries. Our study addressed this issue by starting with nationally representative samples from a large number of countries.

Overall, both boys and girls tended to experience less victimization in OECD countries than in non-OECD countries. However, these results varied as a function of the particular component of victimization. Gender differences did not generalize over OECD/non-OECD countries for any of the three components of victimization. Particularly for physical and verbal victimization, girls experienced less victimization than boys, and the size of the gap was smaller in OECD countries. Overall, gender differences in victimization were smaller in OECD than in non-OECD countries, and the even direction of the difference depended on the type of victimization. Thus, girls experienced more relational victimization than boys in OECD countries, but boys experienced more relational victimization than girls in non-OECD countries.

Many OECD/non-OECD differences could be explained in terms of HDI. However, even after controlling for HDI, male-female differences in victimization levels continued to be smaller in OECD countries. Indeed, after controlling HDI, gender differences were even larger for verbal and physical victimization in OECD countries. Thus, higher levels of victimization in OECD countries for girls are not explained by differences in HDI.

Why are gender differences in victimization smaller in OECD countries? OECD recognized the persistence of gender gaps in their member countries (Downes, Trapp & Nicol, 2017; OECD, 2016), and proposed the "Recommendation on Gender Equality in Public Life" to counter these gender differences, and made progress in achieving gender equity (OECD, 2019b). Hence, gender differences in many desirable outcomes are becoming smaller in OECD countries. From this perspective, there appears to be a form of gender equality in OECD countries compared to non-OECD countries; boys' levels of victimization are approaching or even smaller (for relational victimization) than those for girls. Inspection of the marginal means (Table 4, Figure 2) suggests that this smaller gender difference reflects lower levels of victimization for boys. Thus, the victimization scores for OECD-girls are only marginally smaller than those for non-OECD girls, but victimization scores for OECD-boys are substantially lower than for non-OECD boys.

Paradoxical Effects of Anti-Bullying Attitudes

Anti-bully (and pro-victim) attitudes should be an essential aspect of bullying and victimization research—in terms of gender differences, relations with other variables, and the design of interventions. Here we replicated the surprising finding (Author1 et al., 2011) that students who experienced more victimization tended to have lower anti-bully attitudes (i.e., more pro-bully and less pro-victim), and that this finding was stronger for the physical than for the verbal and relational components. Although the OECD (2019a) reported a similar pattern of results, they offered no theoretical explanation for this seemingly paradoxical result or how it varies for multiple victimization components. However, Author1 et al. offered a theoretical explanation for this phenomenon. Based on their results, they suggested that victims have negative feelings toward themselves (as victims), and identify more with bullies than victims, and even aspired to become bullies themselves. Consistent with their proposal, they found that both bullies and – to a lesser extent, victims – indicated that if confronted by a bullying situation, they would be more likely to actively or passively reinforce the bullying behaviors than to ignore the situation or to advocate for the victim. Their results were also consistent with their reciprocal effects model in which particularly physical bullies become victims, and victims become bullies over time. Extending this research, we showed that this pattern of results is cross-nationally generalizable. Author1 et al.'s (2011) proposal is consistent with our results and a fascinating, seemingly paradoxical finding that warrants further research.

Cross-National Generalizability and Country-Level Differences

Our study's important contribution is evaluating the cross-national generalizability of differences in the multiple components of victimization. We began by showing that physical and relational victimization are substantially higher in non-OECD countries than in OECD countries. However, in marked contrast, we found that verbal victimization is only marginally higher in non-OECD countries.

Although there were systematic differences between OECD and non-OECD countries, the forest plots (Figure 3; also see SM8) showed that there was also considerable variation among countries within these broad classifications. Thus we explored a range of country-level indicators to explain this country-to-country variation. Consistent with limited research (e.g., Alfonso-Rosa et al., 2020), we found that HDI was substantially correlated with victimization; positively for victimization levels and negatively for anti-bullying attitudes. Although HDI was also positively related to gender-differences in relational victimization and anti-bullying attitudes, it was less correlated with verbal and physical victimization.

As a research question, we also pursued the relation between country-level differences in victimization and other societal indices of good/bad behavior. The strongest relations were with the corruption perception index that was substantially related to both levels and gender-differences in victimization and anti-bullying attitudes.

We also related country-level differences in victimization to Hofstede's (2011) set of six cultural values. The strongest correlations were for power distance, and to a lesser extent, individualism and indulgence. Power distance and individualism were related to physical and relational victimization (positively) and anti-bullying attitudes (negatively). They were also related to gender differences in relational victimization and anti-bullying attitudes (negatively). Surprisingly, masculinity/femininity was not significantly related to victimization scores, anti-bullying attitudes, or gender-differences in victimization scores.

Our focus on cross-national comparisons also extends the social ecology approach proposed in Hong and Espelage's (2012) systematic review. They examined risk factors of victimization and associated intervention strategies using Bronfenbrenner's (1994) ecological framework. The ecological framework emphasizes the interdependent relations between an individual and the contextual systems. Within Bronfenbrenner's framework, Hong and Espelage reviewed many of the key issues addressed in the present investigation, and put them into a social-ecological framework. Because their review, and victimization research more generally, are based mostly on US research, they did not fully incorporate the cross-national perspective that is a critical feature of the present investigation. However, our cross-national approach complements the social-ecological framework proposed by Hong and Espelage. Thus we see the country-level differences in the variables that we considered in Research Question 2 as part of the Bronfenbrenner (1994) macro-system, which specifically addresses social and cultural values, including political and economic systems (e.g., Garbarino & Bronfenbrenner, 1976). The macro-system is the outer layer of a person's environment that includes cultural values, norms, customs, legal framework, and governmental policy that have a cascading influence through the framework's lower levels. These are the social, political, governmental, and economic contexts shared by members of a society. Because of the nested nature of the various levels, micro-, meso-, and exo-systems tend to be more similar within than between macro-systems. Hence, cross-national generalizability can be seen as a test of the generalizability of a priori predictions over macro-level contexts and the macro-level processes that influence victimization. However, we note that there are complications in the use of the country as a proxy for the culture that is more closely aligned to the macro-system level within Bronfenbrenner's (1994) ecological framework. Thus, we introduce our focus on cross-national generalizability as an extension of Hong and Espelage's social-ecological approach to be developed in further research.

Generalizability & Universality: Cross-National vs. Meta-Analysis and Systematic Review

It is also relevant to juxtapose our cross-national approach to universality with traditional meta-analysis approaches to generalizability. In doing so, we build on the foundations established by Else-Quest et al. (2010; also see Author1, Author3, Guo, Author4, et al., 2020; P. K. Smith et al., 2019). Although meta-analyses of victimization research typically include country as a moderator, few victimization studies are from developing countries. In the victimization research literature, a major exception to this is the Smith et al. (2019) study based on an amalgamation of cross-national surveys. However, due to the nature of the data available, P. K. Smith et al. were not able to look at different victimization components. Also, their primary focus was on the consistency of gender differences across different surveys rather than the generalizability of levels of victimization across developed and developing countries. Our study addressed this issue by starting with nationally representative samples from a large number of countries. We then evaluated the extent to which results generalize over OECD/non-OECD countries, and countries within each of these groups.

In the universalist perspective of cross-national and cross-cultural psychology (Author1, Author3, Guo, Author4, et al., 2020; xxx & Author1, 2012; Segall et al., 1998; Van de Vijer & Leung, 2000), there is an emphasis on the replicability of results, empirical tests, and cross-national generalizability of support for theoretical predictions in order to generate more nearly universal tests of

findings and predictions. In this sense, the goals of the universalist perspective in cross-national psychology and meta-analysis are similar. Hence, it is surprising that there has not been more research juxtaposing generalizability based on the universality perspective of cross-national research and the classic meta-analysis focus. Of particular concern is that the hypothetical population of studies to which meta-analysis findings generalize is typically ill-defined, primarily due to the ad hoc, typically biased nature of studies available to the meta-analyst. Unlike well-designed cross-national studies in which much attention is placed on sampling to obtain representative samples within each country as well as a diverse range of different countries, the studies typically available to meta-analysts are heavily biased by an overrepresentation of industrialized, developed countries. This issue of overreliance on WEIRD countries is increasingly recognized as a problem in systematic and meta-analytic reviews. Although relevant to most psychological and behavioral research, this issue seems particularly worrisome in bullying and victimization research. From this perspective, our cross-national approach provides a viable alternative to meta-analytic approaches to generalizability.

There are, of course, limitations in our cross-national approach as well. For example, the PISA data used does not include all countries. Holding constant many design features (e.g., countries included, sampling of schools and students, age of students, materials) facilitates comparisons, but this also represents a potential limitation to the results' generalizability. More broadly, the cross-national approach depends on the quality of the available data. Also, it is relevant to note that the cross-national approach based on large secondary databases is not easily applied to experimental studies (but also see Hussong et al., 2013).

Strengths and Limitations of the Present Investigation

Important strengths of the present investigation include the evaluation of three (relational, verbal, and physical) components of victimization based on ESEM, evaluation of the distinctiveness of the components in relation to each other, gender differences, anti-bullying attitudes, multiple indicators of well-being, and cross-national differences based on large, national representative samples of students from 77 countries/economies. However, there are also some limitations and directions for further research that warrant attention.

Because of the nature of the PISA data collection and the rich array of high-quality measures included in the PISA database, we could relate multiple components of victimization to various measures of well-being. However, even though we included diverse countries, PISA better represents industrialized, developed countries – particularly those from the OECD – than non-industrialized, developing countries. Nevertheless, our PISA2018 study is the largest, most diverse sample of countries ever considered in victimization research.

A significant limitation of the PISA database is the items used to measure victimization and focus on global victimization. Thus, for example, the three factors of victimization in the Author1 et al. (2011) were based on a total of 18 items, six items per factor; a typical recommendation is that at least three items per factor should be used (Author1, 2007). However, the three victimization factors in the PISA survey were represented by a total of only six items, and a single item represented the critical verbal victimization component. Indeed, the global victimization ("being bullied") provided by PISA is based on only three of these items. Although representing each of the multiple victimization components, their composite measure should be considered a formative measure based on potentially distinct components rather than a reflective, unidimensional measure of victimization. Also, the PISA survey did not provide any cyberbullying measures that have received increasing emphasis as a possibly separate component of bullying and victimization. Indeed, PISA did not include any measures of bullying, but focused only on victimization (see subsequent discussion of "Simultaneous Evaluation of Bullying and Victimization").

We also acknowledge that our evaluation of correlations between country-level differences in victimization and country characteristics invites misinterpretation due to the ecological fallacy (Robinson, 1950). This can occur when researchers draw conclusions about individuals within groups that are based on group-averages (e.g., country-average results in our study). Thus, not even the direction of effects at the individual student level can be inferred from the correlation among group-level variables. Nevertheless, we emphasize that the ecological fallacy does not invalidate our interpretations of correlations between country-average variables, as we do not make interpretations about relations among individual differences at the student level based on the country-level variables.

An important limitation of the PISA data is its cross-sectional data collection that precludes tests of causal interpretations of the results and implications for long-term outcomes. Although it is reasonable to argue that some background variables (gender, age, SES, and many country-level variables) precede victimization, this is not the case for mental health and well-being. In particular, there is an implicit

assumption in much cross-sectional research that victimization has significant negative consequences for mental health and well-being measures like those considered here. However, longitudinal data and appropriate statistical tests of this assumption suggest that the relations might be reciprocal or even reversed. Mental ill-health and associated stigmatization might represent vulnerabilities that make students more likely to be the target of bullying (Juvonen & Graham, 2014). Thus, mental health and well-being can be a precursor of victimization, a consequence of victimization, or reciprocally related to victimization (e.g., Drazdowski et al., 2019; Karlsson et al., 2013; Leadbeater & Hoglund, 2009; Author1 et al., 2011; Author1 et al., 2016; also see meta-analysis by Walters, 2020).

Finally, we have argued that our cross-national approach to assess generalizability has important advantages compared to traditional meta-analytic approaches to systematic review. However, the two approaches are not mutually exclusive. Thus, for example, the meta-analysis by Möller et al. (2009) included both PISA results from many countries and a large number of relevant small-scale studies. In support of the conclusions' generalizability, findings were consistent over PISA results (representing our cross-cultural approach) and independent smaller studies (representing a traditional meta-analysis approach). Although it is not always possible to integrate the two approaches into a single analysis, this integration provides a potentially significant direction for further research.

Compared to meta-analyses based on various ad hoc measures of victimization, the consistency of materials and procedures used to collect the data is an important strength of our cross-national approach to generalizability based on PISA data. However, this consistency can also be a potential weakness concerning generalizability. From this perspective, there is a need to test the generalizability of the results presented here with different approaches to collecting data and measuring the multiple victimizations constructs. Similarly, although 15 years of age is a critical period in life in relation to the transition from school into adulthood (OECD, 2016), there is a need to test the generalizability of results with different age groups. In particular, both the incidence of victimization and the profile of different victimization components are likely to vary with age (e.g., Casper & Card, 2017).

Directions for Future Research and Implications for Policy and Practice

Simultaneous Evaluation of Multiple, Parallel Components of Bullying and Victimization

PISA only collected data on victimization measures. This is consistent with an unfortunate tendency for victimization research and reviews to consider victimization separately from bullying behaviors. This is a mistake as both must be considered together to understand either phenomenon (Juvonen & Graham, 2014). Indeed, researchers (e.g., Gumpel, 2008; Author1 et al., 2011) note the need to simultaneously assess bullying and victimization to understand better the complex patterns of relations between these domains and subdomains. Particularly when the focus is on the individual student, there are complex relations between specific components of bullying and victimization, as well as their antecedents and consequences. Longitudinal data suggest that bullying and victimization are reciprocally related, and that reciprocal relations are specific to particular components. Thus, for example, in their longitudinal study, Author1 et al. (2011; also see Karlsson et al., 2013; Leadbeater & Hoglund, 2009; and the meta-analysis by Walters, 2020) found that matching components of bullying and victimization are reciprocally related; physical bullies become physical victims, and physical victims become physical bullies, but physical victims do not become verbal or relational bullies. To develop policy and interventions to break this vicious cycle, it is essential to simultaneously evaluate parallel, multiple components of both bullying and victimization. This would allow researchers to compare the incidence of bullying and victimization across their multiple components, and their relations to other outcomes.

Studies of bullying and victimization have long recognized that there are broadly four groups of students; pure victims, pure bullies, bully-victims, and bystanders who are neither bullies nor victims (Haltigan & Vaillancourt, 2014; Lovegrove et al., 2012; Nansel et al., 2004; Vaillancourt et al., 2010; Salmivalli & Nieminen, 2002; P. K. Smith et al., 2019). However, this classification scheme, particularly the evaluation of bully-victims as a distinct group, requires that researchers assess bullying and victimization. Furthermore, this research on bully-victims is typically based on global bullying and victimization measures, leaving unanswered the theoretical issue of whether the effects attributed to bully-victims are specific to particular components or generalize across the multiple components of bullying and victimization.

Implicit in this classification scheme is an on-going interest in the so-called bully-victim hypothesis—that bullying and victimization interact in such a way that high levels of both have undesirable consequences beyond what could be explained by either considered in isolation. When this bully-victim interaction is formally tested, the tests typically are based on crude dichotomies (i.e., high/low splits of bullying and victimization measures). However, there are a host of practical, statistical, and theoretical

reasons (e.g., power, standardized effect size, reliability, model specification, and the interpretability of results) for why the use of a dichotomous (high-low) split and associated threshold models are dubious (e.g., DeCoster, et al., 2009; MacCallum et al., 2002; Preacher et al., 2005). Appropriate statistical models should be based on latent, continuous measures of the multiple components of bullying and victimization, and latent interactions between measures of bullying and victimization.

In summary, it is essential for future victimization research to simultaneously evaluate parallel, multiple components of both bullying and victimization. Also needed are stronger statistical models to evaluate the bully-victim interactions. Their simultaneous consideration has important implications for theory, policy, practice, and the development of appropriate interventions.

Conceptual Basis of Global Victimization Measures

We also note that using a single global score to represent overall victimization might be reasonable if based on an appropriate theoretical rationale. Appropriate models of this global component might include a higher-order factor model, a bifactor model, or a formative model. Each of these approaches has a different theoretical rationale. Higher-order and bi-factor models assume a reflective model of victimization with a theoretical rationale different from a formative model. In reflective measures, the specific indicators are assumed to be caused by global factors (i.e., arrows go from the latent factor to the indicators). In this sense, the different forms of victimization are assumed to be interchangeable (like the multiple items designed to infer a first-order construct). A critical test of the global component in these approaches is the relations between the lower-order factors (in the higher-order factor model) or the specific factors (in the bifactor model) and critical outcomes; they are assumed to be small and negligible in comparison to those based on the global component.

In contrast, formative measures are designed to be a summative index of discrete indicators (i.e., the arrows go from the indicators to the latent factors). However, it appears that many victimization studies that focus on a global component of victimization confuse formative and reflective measurement models. Thus, for example, if the global victimization is a formative index of multiple components of victimization, then internal consistency is not necessarily a desirable property and an inappropriate basis for assessing measurement error. Instead, it is desirable for the discrete components that make up the summative index to be as independent as possible. Nevertheless, even with formative measures, it is essential to provide a theoretical rationale for the indicators that make up the summative index and be consistent across different studies. However, this does not seem to be the case in victimization research.

Although beyond the present investigation's scope, we note that the theoretical rationale and appropriate indicators for constructing a global victimization measure are important for further research. However, our results demonstrated that the multiple components are not interchangeable, which calls into question the reflective approach implicit in many studies that focus on global victimization. Hence, researchers who use global victimization measures need to evaluate the theoretical and statistical rationale for their use as a formative measure.

The Role of Anti-bullying Policies in Victimization Policy, Practice, and Intervention

OECD (2019a) reported results for a cross-national study of anti-bullying policies, and we expected results from this survey to be positively related to victimization. Indeed, OECD specifically noted the importance of developing appropriate policy frameworks to combat bullying. However, our country-level index of anti-bullying policies was unrelated to victimization levels or gender-differences in levels of victimization. Although this policy development index was significantly related to anti-bullying attitudes, even this correlation was non-significant after controlling HDI. As noted by the OECD (2019a), anti-bullying policies' effectiveness depends on their content and implementation. We also note that survey responses by PISA representatives from each country may not be a fully adequate measure of bully policies within each country and particularly for schools within the country. Nevertheless, our findings align with those of Hall (2017), whose systematic review found no clear relationship between anti-bullying policies and bullying prevalence. This lack of relation between policy and outcomes is worrisome and warrants further research, particularly given the emphasis of anti-bully policies in the design of intervention studies.

Capitalizing on Anti-Bullying Attitudes in the Design of Interventions

PISA results show that students generally have healthy anti-bullying attitudes. Thus, for example, OECD (2019a) reported that 88% of students from OECD countries agreed that it was good to help students who were unable to defend themselves and wrong to join in the bullying. However, OECD also noted that in some schools and countries, many students disagreed with these beliefs. In our study, this was evident in the negative correlations between HDI and anti-bullying attitudes.

Anti-bullying attitudes provide an important basis for developing policy and practice to counter bullying and victimization (e.g., Baldry & Farrington, 1999; OECD, 2019a). Anti-bullying interventions that target individuals have been mostly ineffective, but interventions that target the whole-school community in ways that change the school ethos are widely endorsed (e.g., Cross et al., 2011; Farrington & Ttofi, 2009). There is not a clear theoretical basis for this suggestion, but self-concept theory (e.g., Author1, 2006; Author1, Author7, et al., 2004; Author1 et al., 2011), in combination with anti-bullying attitudes, provides a theoretical rationale for this strategy. In particular, Author1 and colleagues suggested that bullies enhance their sense of importance and inflated self-views (Juvonen & Graham, 2014) by victimizing others, and bystanders passively reinforce bullies by providing an audience. Relatedly, Juvonen, and Graham (2014) noted that bystanders who view bullying incidents sometimes reinforce bullies by smiling and laughing, and are likely to side with bullies to protect their social status. In contrast, if the school ethos actively reinforces anti-bullying attitudes, then bullying will be seen as unacceptable, and bullies will no longer derive status from their bullying behaviors. Making a similar point, Juvonen and Graham (2014) suggested that changing school ethos might require interventions to focus on popular and dominant students "to penetrate social norms and raise collective responsibility by working directly with the youths who most directly shape peer norms" (p. 178).

Conclusions and Recommendations

School victimization is a world-wide issue, but insufficient research has focused on generalizability in relation to cross-national differences and the multiple (relational, verbal, physical) components of victimization. We addressed this issue with nationally representative samples from 77 countries, arguably the largest, most diverse study of victimization ever undertaken. We provide strong empirical support and a theoretical rationale for considering all three components of victimization. We argue that anti-bullying attitudes are also important for understanding and combating victimization. We demonstrate an anti-bullying attitude paradox whereby victims of physical bullying have weaker anti-bullying attitudes and identify with bullies more than other victims.

Although girls experience less victimization overall than boys, this is primarily evident in physical victimization and mostly disappears for relational victimization. Well-being is negatively related to victimization, but the biggest effects are for relational and verbal rather than physical victimization. There are systematic cross-national differences in victimization and gender differences in victimization. Victimization is higher in OECD than non-OECD countries and in more developed countries. Furthermore, gender differences were smaller in OECD countries (and girls in OECD countries experienced more relational victimization than boys in OECD countries). Although this might reflect a form of gender equality, these cross-national differences in victimization were unrelated to policy development/implementation.

Key findings (multiple victimization components, differentiated relations with gender and well-being, cross-national differences) provide theoretical advances with implications for policy, practice, and intervention. Important implications and recommendations for future research are:

1. Measurement in victimization research is weak. Researchers need to use psychometrically strong instruments that reliably differentiate the multiple (relational, verbal, physical) components of victimization. Researchers are encouraged to measure parallel components of bullying and victimization. Notably, there already exist appropriate measurement instruments consistent with a tripartite model of victimization (and bullying) that could be used in future research.
2. Researchers are encouraged to include anti-bullying attitudes in studies of victimization and bullying. Anti-bullying attitudes are essential in understanding victimization and a key outcome in the evaluation of interventions.
3. More longitudinal research is needed to evaluate trajectories of multiple components of victimization and bullying, and their causal ordering with other variables posited to be antecedents, consequences, and correlates of bullying and victimization. Also, further research is needed with more than just two waves of data that allow the application of more sophisticated models of longitudinal data that separate within- and between-person effects in longitudinal panel data (e.g., random intercept cross-lag panel models and bivariate STARTS model—see Hamaker & Muthén, 2019; Usami et al., 2019).
4. Researchers should pursue sophisticated multilevel models that better differentiate effects at the level of the individual student from those associated with grouping variables such as with schools, communities, states, educational systems, and countries. Contextual variables associated with different levels (e.g., values, ethos, anti-bullying attitudes, school type, organizational structure, instructional practices, resources, intervention, and anti-bullying policies) should appropriately be evaluated as group-level contextual variables rather than individual student-level variables.

5. Interventions need to focus on school ethos and changing attitudes of bystanders, the majority of students who are neither victims nor bullies. Strategies for accomplishing this (information, media, policy, endorsement by student leaders, classroom climate, school culture, testimonials) need exploration. Focus on individual bullies and victims is unlikely to be successful unless there are changes in school ethos, but might supplement these whole-school interventions.
6. More research is needed on the antecedent characteristics of victims and risk factors associated with victimization that can be incorporated into interventions. In some cases, this might include counseling of victims (e.g., development of more effective coping strategies) or changing of the school ethos (tolerance in relation to gender, empathy, perspective-taking, ethnicity, religion, disability, obesity, stigmatization, and students who are "different").

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Table 1*Factor Loadings and Factor Correlations for the Six Models*

Factors/Items	Model 1		Model 2		Model 3		Model 4		Model 5	
	Est	SE	Est	SE	Est	SE	Est	SE	Est	SE
Physical (Phy)	Physical (Global)		Physical (Verbal)		Physical		Physical		Physical	
Vic-1_Rel	.63	.003							.02	.001
Vic-2_Verb	.70	.002	.70	.002						
Vic-3_Phys	.84	.003	.84	.003	.85	.003	.85	.003	.65	.004
Vic-4_Phys	.79	.003	.79	.003	.80	.003	.80	.003	.68	.004
Vic-5_Phys	.82	.003	.82	.003	.83	.003	.85	.003	.77	.004
Vic-6_Rel	.76	.003							.42	.004
Relational (Rel)			Relational		Relational (verbal)		Relational		Relational	
Vic-1_Rel			.65	.003	.67	.003	.67	.003	.74	.004
Vic-2_Verb					.75	.003				
Vic-3_Phys									.27	.003
Vic-4_Phys									.18	.003
Vic-5_Phys									.12	.003
Vic-6_Rel			.79	.003	.79	.001	.77	.003	.42	.004
Verbal (Vrb)									Verbal	
Vic-1_Rel										
Vic-2_Verb							1.00	0	1.00	0
Vic-3_Phys										
Vic-4_Phys										
Vic-5_Phys										
Vic-6_Rel										
Correlations										
Rel w Phy			.95	.002	.89	.002	.92	.002	.616	.005
Vrb w Rel							.78	.002	.762	.003
Vrb w Phy							.66	.002	.57	.002

Note. Parameter estimates and standard errors (SE) for six models (See Figure 1; Also see SM3 for goodness-of-fit indices for each model). Anti-bully (pro-victim) attitudes modeled as a separate factor in all the models. The six victimization items (Vic-1 to Vic-6) and the a priori component that they represent are modeled as 1, 2, or 3 factors in alternative models. The multiple victimization components are modeled as CFA factors (with no cross-loadings) or ESEM factors (with cross-loadings).

Table 2

Gender Differences and Anti-Bullying Attitudes: Correlations with Victimization Factors Based on each of Five Models (see Figure 1).

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Corr	SE	Corr	SE	Corr	SE	Corr	SE	Corr	SE
Gender Differences										
Female with Physical	-.15	.002	-.18	.002	-.18	.002	-.18	.005	-.19	.005
Female with Relation			-.07	.003	-.10	.002	-.07	.003	-.03	.007
Female with Verbal							-.11	.005	-.11	.005
Anti-Bullying Attitudes										
Attitude with Physical	-.10	.002	-.12	.002	-.14	.002	-.14	.002	-.17	.005
Attitude with Relation			-.04	.003	-.02	.002	-.03	.006	.01	.006
Attitude with Verbal							.00	.005	.00	.005
Attitude with Female	.20	.002	.20	.002	.20	.002	.20	.002	.20	.002
Victimization Factors										
Relation with Physical			.95	.002	.89	.002	.92	.005	.65	.011
Verbal with Relation							.78	.009	.77	.010
Verbal with Physical							.66	.010	.57	.010

Note. Correlations (Corr) and (Est) and standard errors (SE) for five models (See Figure 1; Also see SM3 for goodness-of-fit indices). Anti-bully attitudes

were modeled as a separate latent factor in all the models, based on responses to five items. Female is a single-item (1 = female, 0 = male). See SM 3 and SM4).

Table 3*Relations Between Victimization Factors and Correlates*

	Correlations (No Controls)				Correlations (with Controls)			
	Relation	Verbal	Physical	Attitude	Relation	Verbal	Physical	Attitude
Negative Affect								
Scared	.13	.11	.04	.08	.15	.13	.09	.05
Miserable	.18	.17	.08	.06	.20	.18	.11	.06
Afraid	.10	.10	.02	.11	.14	.13	.08	.07
Sad	.18	.14	.03	.11	.20	.16	.08	.09
Fear of Failure	.17	.14	.03	.13	.20	.16	.07	.11
Mean	.15	.13	.04	.10	.17	.15	.09	.08
Positive Affect								
Happy	-.17	-.13	-.12	.09				
Lively	-.11	-.09	-.06	.07	-.14	-.10	-.08	.03
Proud	-.07	-.06	.00	.04	-.10	-.07	-.05	.04
Joyful	-.15	-.12	-.10	.09	-.08	-.06	-.01	.03
Cheerful	-.14	-.11	-.07	.08	-.12	-.09	-.06	.04
Life Satisfaction	-.19	-.16	-.07	-.01	-.13	-.09	-.05	.04
Meaning	-.06	-.08	-.02	.09	-.19	-.15	-.06	-.04
Belonging	-.36	-.25	-.19	.17	-.06	-.07	-.03	.08
Mean	-.18	-.14	-.09	.08	-.32	-.22	-.12	.08

Note. For the final model (Figure 1) latent factors were related to the set of correlates. Presented are simple correlations (not controlling for background/demographic covariates) and partial correlations that do control for the covariates. Because of the large sample size, all estimates greater than .02 are statistically significant (standard errors vary from less than .002 to .006).

Table 4*Victimization Differences: A Two Gender x Two Country (OECD/Non-OECD) Groups Latent ANOVA*

Four Groups		Group Mean Differences and SEs			
		Relation	Verbal	Physical	Attitude
Female-OECD	Means	-.082	-.121	-.271	.362
	SE	.004	.003	.003	.004
Male-OECD	Means	-.144	.041	.049	-.095
	SE	.004	.003	.003	.003
Female- Non-OECD	Means	.019	-.097	-.112	.048
	SE	.004	.003	.003	.003
Male- Non-OECD	Means	.206	.176	.335	-.316
	SE	.004	.003	.003	.004
Group Main, Interaction and Simple main effects					
Gender Main Effect		-.031	-.109	-.192	.205
SE		.002	.002	.002	.002
OECD Main Effect		-.113	-.04	-.111	.134
SE		.002	.002	.002	.002
Gender x OECD Interaction		.062	.028	.032	.023
SE		.002	.002	.002	.002
Simple Main Effects					
Gender within OECD		.031	-.081	-.160	.229
SE		.003	.002	.002	.003
Gender within Non-OECD		-.093	-.136	-.223	.182
SE		.003	.002	.003	.003
OECD within Female		-.175	-.067	-.143	.11
SE		.003	.002	.003	.003
OECD within Male		-.051	-.012	-.080	.157
SE		.003	.002	.002	.002

Note. Latent ANOVA evaluating main, interaction, and simple-main effects of gender (1 = female, 0 = male) and OECD country (1 = OECD, 0 = non-OECD) in four victimizations latent factors. Factor means are the deviation from the grand mean (i.e., sum to zero across the four groups).

Table 5

Country-to-Country Variation: Correlates of Country-Level Variation in Victimization Means and Country-Level Variation in Gender Differences

	Country-level variation in victimization means				Country-level variation in gender differences			
	Relation	Verbal	Physical	Attitude	Relation	Verbal	Physical	Attitude
Country-level correlates								
Human development								
Human Dev Index	-.40**	-.15	-.60**	.65**	.60**	.08	-.08	.61**
OECD	-.32**	-.21	-.51**	.47**	.68**	.38**	.16	.51**
L3-SES	-.25*	-.20	-.46**	.44**	.48**	.08	-.05	.52**
L3-ACH	-.47**	-.26*	-.64**	.33**	.46**	.10	.04	.22
Societal indices								
National Bully policy	-.01	.16	-.16	.34**	.15	-.00	-.09	.22
Global Peace Index	-.32**	-.05	-.35**	.45**	.47**	.10	-.10	.41**
Corruption Perception	.35**	-.02	.56**	-.67**	-.60**	-.09	.17	-.60**
Homicides	.31*	.17	.19	-.26*	-.14	.16	.28*	-.36**
Cultural values								
PDI	.33*	.16	.50**	-.56**	-.62**	-.21	.04	-.64**
IND	-.07	.03	-.44**	.45**	.67**	.25	-.16	.66**
MAS	.03	.19	.08	-.11	.03	-.07	-.03	-.08
UAI	-.15	-.39**	.08	-.23	-.20	.12	.20	-.05
LTO	-.26*	-.38**	-.13	-.15	.01	.09	.28*	-.04
IND	-.08	.12	-.34**	.54**	.46**	.11	-.08	.29*

Note. Country-to-country variation is evaluated in relation to country-level means for the three victimization components and anti-bullying attitudes (see Figure 3), and in relation to country-level gender differences for the three victimization components and anti-bullying attitudes (see SM8). In each case, country-level differences were related to country-level correlates. Correlates included country-level measures of country-level development, societal indices good and bad behavior, and Hofstede' (2011) set of six cultural values: Power distance index (PDI); Individualism vs. collectivism (IND); Masculinity vs. femininity (MAS); Uncertainty avoidance (UAI); Long/short-term orientation (LTO) ; Indulgence vs. restraint (IND). (see SM1 for more information on these correlates; also see SM7 and SM8)

Figure 1*Five Alternative Structural Models Relating Six Victimization Items*

Note. Five factor structure models relating six victimization (V1 – V6, P= physical, V = verbal, R = relational) items to one (Model 1), two (Models 2 and 3), or three factors (Models 4 and 5). Models 3 and 5 are ESEM models that allow cross-loadings. The single verbal victimization item is shaded in gray

Figure 2

Graphs of Marginal Means Represent OECD/Non-OECD and Gender Differences

Note. A latent ANOVA (see Table 4) was used to evaluate main, interaction, and simple-main effects of gender (1 = female, 0 = male) and OECD country (1 = OECD, 0 = non-OECD) in four victimizations latent factors. Factor means are the deviation from the grand mean (i.e., sum to zero across the four groups).

Figure 3*Country-Level Means of the Three Components of Victimization and Anti-Bullying Attitudes*

Note. Shapes in red indicate OECD countries, those in blue indicate non-OECD countries. Within the OECD and non-OECD countries, countries are ordered in relation to country-average achievement based on PISA test scores (also see Table 5). Triangle indicate the estimates were significant at $p < 0.05$ level, circles indicate ones were not statistically significant.