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Prevalence of Student Violence Against Teachers: A Meta-Analysis

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Prevalence of Student Violence Against Teachers: A Meta-Analysis

Abstract

Objective: Violence directed against teachers is a public health issue that warrants attention in research and practice. There is a growing literature on teacher-directed violence that has examined the prevalence of these incidents, yet there is considerable variation across studies in rates of violence. There is a need for a systematic and comprehensive review of these issues in order to assess the extent of the problem. Method: In the current study, we identified 5,337 articles through our initial screening process, and our final analysis included 24 studies that met criteria for this meta-analysis. We examined prevalence of violence perpetrated against teachers by students and how these rates varied by reporting timeframe, reporter, and type of violence. Results: The prevalence of any type of teacher-reported violence victimization within two years or less ranged from 20% to 75% with a pooled prevalence of 53%. The prevalence rate according to a career timeframe was lower ranging from 32% to 40% with a pooled prevalence of 37.79%. Results also show variation in prevalence according to victimization type (e.g., physical attacks, theft of personal property) with lower prevalence rates for more intrusive types of victimization. Conclusions: This study represents the first meta-analysis investigating the prevalence of student violence directed against teachers. Findings from this study provide supporting evidence of the high rate of violence directed toward teachers, especially when accounting for both physical and non-physical forms of violence. Teacher victimization appears to be an international problem suggesting that the discourse by policy-makers and practitioners should be framed within an international context while also considering local nuances.

Keywords: Violence; Teachers; Teachers victimization; student; Bullying

Prevalence of Student Violence Against Teachers: A Meta-Analysis

School violence occurs at multiple social-ecological levels and affects multiple stakeholders. However, the research on school violence has primarily focused on students as both victims and perpetrators (Longobardi, Settanni, Prino, & Gastaldi, 2015; Longobardi, Prino, Fabris, & Settanni, 2017). There remains a dearth of research examining violence directed against teachers. Given teachers' consistent contact with students and their significant influence in the lives of children, a better understanding of teachers' experiences with violence is critical. Over the past several decades, greater accountability has been placed on schools, and teachers more specifically, within popular and political discourse. However, this emphasis on accountability has overshadowed the focus on improving the workplace environment for teachers. A better understanding of how teachers experience workplace violence can shape this discourse and help to promote teacher well-being and improve student outcomes.

Prevalence of Teacher-Directed Violence

Research examining teacher-directed violence is still in its early stages, and this research area has gained more recent attention as a result of work conducted by the American Psychological Association Task Force on Classroom Violence Directed Against Teachers (e.g., Anderman et al., 2018; Espelage et al., 2013; McMahon et al., 2014; McMahon, Martinez, Reddy, Espelage, & Anderman, 2017; McMahon, Reaves et al., 2017; Reddy et al., 2013). The Task Force conducted a national study in the United States (McMahon et al., 2014), which found that 80% of teachers reported experiencing at least one of eleven different forms of victimization within the current or past school year. National-level studies conducted outside of the United States also reveal high prevalence of teacher-directed violence. For example, a geographically stratified random sample conducted in Canada revealed that 80% of teachers had experienced

school violence during their career (Wilson, Douglas, & Lyon, 2011).

Scholars have conducted research at the state or province level and have revealed concerning rates of teacher-directed violence. For example, in a United States study of teachers in the state of Minnesota, 8% of teachers reported being physically assaulted, and 39% of teachers reported having experienced non-physical violence (e.g., threats, sexual harassment, verbal abuse, bullying) (Gerberich et al., 2011). Similarly, in a study conducted among school personnel in the state of Pennsylvania, 8% of participants reported having been physically assaulted, and 29% reported having experienced a violent, non-physical event (e.g., threats, sexual harassment, verbal abuse, bullying) within the past year (Tiesman, Konda, Hendricks, Mercer, & Amandus, 2013). Internationally, a study of prevalence conducted in a Slovakian province revealed that 49% of teachers experienced at least one form of victimization within the last 30 days (Dzuka & Dalbert, 2007).

Collectively, these studies present an emerging picture of the extent of teacher-directed violence. However, studies examining the prevalence of teacher-directed violence occur at multiple levels of analysis (e.g., school district, state, national) and have consisted of different research methodologies. Therefore, this body of work can benefit from systematic and robust estimates of the prevalence of teacher-directed violence that take into account some of these methodological variations. Ultimately, reliable prevalence estimates are needed in order to better understand the extent of this problem and how these rates vary by reporting timeframe, reporter, and type of violence. Assessment of the literature can also inform future research, provide a basis for developing comprehensive violence interventions that account for teacher experiences in addition to students, and guide social policy reform.

Methodological Considerations

Prevalence of teacher-directed violence has varied across studies and have revealed different rates (e.g., Casteel Peek-Asa, & Limbos, 2007; Wei et al., 2013). However, some of these estimates may be susceptible to the different methodologies used to study teacher-directed violence (Reddy, Espelage, Anderman, Kanrich, & McMahon, in press). For example, research has examined prevalence according to different types of perpetrators (e.g., students, parents), timeframes (e.g., violence in the past 30 days, violence during the past two years), reporters (e.g., teacher report, student report), and violence type (e.g., physical attack, harassment). Estimates of teacher-directed violence may need to account for these variations.

Perpetrator type. Most of the studies on teacher-directed violence have examined student perpetrators (e.g., Gerberich et al., 2011). This focus is understandable when considering that teachers spend the majority of their time with students in the classroom setting. However, research has also examined victimization generated by other perpetrators such as colleagues and parents, and accordingly, has detected variation in victimization rates (Martinez et al., 2016). Nevertheless, studies suggest that teacher victimization is most often generated by students, as compared to other perpetrators (McMahon et al., 2014; Tiesman et al., 2013). The high rate of victimization generated by students has implications for teachers' well-being and concomitant student outcomes, such as disciplinary and exclusionary consequences (e.g., office disciplinary referrals, school suspensions; Martinez, McMahon, & Treger, 2015). Given the high rates of student-perpetrated violence against teachers and the preponderance of studies examining student perpetrators, research examining patterns across this body of research is needed.

Timeframe. Studies examining teacher-directed violence have also varied according to the reporting timeframes utilized to study the problem. Most studies have examined period prevalence, which examines the proportion of the population experiencing teacher-directed

violence within a specific period of time (e.g., 12 months, career). For example, research has examined teacher-directed violence according to career (Özkiliç, 2012) and one-year timeframes (Tiesman et al., 2013); whereas, other studies have relied on much shorter timeframes such as 30 days (e.g., Dzuka & Dalbert, 2007). These different timeframes can have implications for prevalence estimates, with shorter timeframes yielding lower rates of reported victimization. Additionally, the use of retrospective self-report methods with protracted periods of time may lead to problems with recall, especially for less serious episodes of victimization (e.g., intimidation, harassment, verbal abuse; Warshaw & Messite, 1996). Taken together, prevalence estimates of teacher victimization should account for disparate timeframes.

Reporter. Research examining violence directed against teachers has relied on self-report methods across a variety of informants such as teachers and students (Chen & Astor, 2008; Wilson et al., 2011). For example, according to Reddy and colleagues' (in press) literature review of 37 studies, most studies have relied on teacher informants (73%), followed by student informants (14%), school administrators (8%); only 16% of studies relied on multiple informants (e.g., students and teachers). It is likely for prevalence rates to vary according to reporter. For example, teachers may underreport the extent of this problem due to concerns of how their instruction or classroom management may be perceived, and principals may underreport these events in order to present their schools favorably. Overall, prevalence estimates of teacher-directed violence should account for variation across informants.

Violence type. Finally, rates of teacher-directed violence vary by offense type (e.g., intimidation, physical attack). For example, whereas teacher-directed violence is often viewed as physical violence, a growing number of studies suggest that teacher-directed violence is most often non-physical and consists of 'low-level' offenses, such as intimidation, bullying, and

verbal threats (e.g., Tiesman et al., 2013; Wilson et al., 2011). Research conducted among teachers in Minnesota showed that nonphysical workplace violence was five times more common than physical violence (Gerberich et al., 2011). Similar work conducted in Canada found covert violence during the previous year or career to be three and four times higher, respectively, than overt forms of victimization (Wilson et al., 2011). In fact, some studies have found verbal abuse to be the most common type of victimization; yet other forms of nonphysical violence, such as threats, intimidation, property offenses, and bullying are also very common (Tiesman et al., 2013). Clearly, physical violence poses more immediate threats to teachers' safety and well-being; however, non-physical violence can potentially have cumulative or allostatic affects. Collectively, all forms of violence can negatively affect teacher well-being and job retention, and examining prevalence rates across various forms of teacher-directed violence is warranted (e.g., Dzuka & Dalbert, 2007; Espelage et al., 2013; Galand, Lecocq, & Philippot, 2007).

Current Study

Due to the disparate prevalence rates of teacher-directed violence across studies, research is needed that systematically and rigorously approximates these estimates. The purpose of this study is to examine the prevalence of student-generated violence directed against teachers using a meta-analytic approach. Secondly, we account for methodological variations across studies, and toward this end, we examine prevalence rates of teacher-directed violence by timeframe (e.g., within the past two years, career), informant (e.g., teacher report, student report), and violence type. This study contributes to the body of research by drawing from international studies and producing pooled estimates of the prevalence of teacher-directed violence.

Method

Study Selection Criteria

In order to be included in this systematic review and meta-analysis, the studies had to meet the following criteria: (1) published in peer-reviewed journals, (2) include quantitative empirical original research, (3) focus on any of type of student violence against teachers, 4) written in English, Spanish or Italian due to language limitations, (5) available in full-text, and (6) report statistical data enabling effect sizes to be computed. No restrictions were included concerning the year of publication or cultural context (e.g., country where the study was conducted).

Search Strategy

A literature search of published studies was conducted between March 2016– April 2017 by two independent reviewers (with discrepancies resolved by discussion). Several electronic databases (Google Scholar, PubMed, Scopus, Web of Science) were searched. This search was performed using combinations of the following keywords: “violence”, “bullying”, “teachers”, “against teachers”, “towards teachers”, “victimized teachers”. Additionally, the reference sections of all included studies were reviewed for possible eligibility. Finally, experts in the field were asked to identify additional studies. Figure 1 presents the flow chart describing the screening and selection process of the studies.

A total of 5,337 articles identified through the screening process were originally examined based upon the study title and abstract. Of these articles, we identified 110 relevant studies, and after removing duplicates, this number was reduced to 80, and we reviewed the full text of these 80 studies. However, upon further review, we excluded an additional 42 studies due to not meeting the inclusion criteria, which resulted in 38 studies that fulfilled the selection criteria. Of these 38 studies, 7 were eliminated due to not reporting the individuals (e.g.,

students, parents, or colleagues) who perpetrated violence against teachers (Cemaloglu, 2007; Gerberich et al., 2011; Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Mooij, 2011; Russo, Milic, Knezevic, Mulic, & Mustajbegovic, 2008; Wei, Gerberich, Alexander, Ryan, Nachreiner, & Mongin, 2013; Wilson, Douglas, & Lyon, 2011). Further, three articles were removed due to using the same sample as another study (Gregory, Cornell, Fan, Sheras, Shih, & Huang, 2010; Martinez, McMahon, Espelage, Anderman, Reddy, & Sanchez, 2016; Moon, Morash, Jang & Jeong, 2015). An additional four studies were removed for not specifically reporting the prevalence of student violence against teachers (they included other educators) (Akinlolu et al., 2011; Gerberich et al., 2014; Kondrasuk, Greene, Waggoner, Edwards, & Nayak-Rhodes, 2005; Tiesman, Hendricks, Konda & Hartley, 2014). Finally, two studies were excluded from the meta-analyses because they did not report the statistical data needed to conduct our statistical analysis (Tiesman, Konda, Hendricks, Mercer & Amandus, 2013; Williams & Ernst, 2016).

Ultimately, our selection criteria and close examination of studies resulted in 22 published articles that were included in the meta-analysis; all of these studies were written in English and published in a peer-reviewed journal between 1988 (Dworkin, Haney, & Telschow, 1988) and 2016 (Moon & McCluskey, 2016). Two of the 22 articles (Duzka & Dalbert, 2007; Kõiv, 2015) provided data on two independent samples, yielding a total of 24 studies.

Coding and Reliability

Two independent coders extracted study information, design and measurement (e.g., sampling method, location), and sample characteristics (e.g., gender, age, years teaching). The most comprehensive report was used when sample data appeared in multiple manuscripts. In these instances, we supplemented missing data from the other report.

In addition, an ad hoc 9-item checklist was used to assess the methodological quality of the studies. The items within this checklist are as follows: (1) using a probabilistic sampling procedure; (2) specifying eligibility and exclusion criteria; (3) specifying timing of data collection; (4) specifying methodological details to allow replication; (5) using valid and reliable measures; (6) clarifying types of violence assessed with an explicit statement of whether the types of violence include physical, sexual, and/or emotional violence (e.g., does not simply rely on terms such as "abusive" or "violent" to define a behavior; (7) including clear, detailed definitions of the types of violence assessed; (8) conducting appropriate statistical analyses, and (9) drawing appropriate conclusions based on the data. Each item was scored as 1 when the study met the criteria, and as 0 otherwise. A total quality score (TQS) was calculated for each study by summing the corresponding quality item scores (range: 0–9 with a higher score indicating a higher overall quality). The total quality scores across the 24 studies in our sample ranged from three to seven ($M = 5.38$, $SD = 1.31$).

Two psychology doctoral candidates served as the independent raters. Kappa coefficients and intraclass correlations were calculated in order to assess the reliability between the two raters. Inter-rater reliability was high, with a mean intraclass correlation of .98 ($SD = .04$), ranging from .96 to 1 for continuous variables, and with kappa coefficients of 1 for qualitative variables. Discrepancies between the raters were resolved by consensus.

Computing Effect Sizes

Prevalence of student violence directed against teachers served as the measure of interest. In studies where the prevalence was not directly reported ($k = 11$), prevalence was calculated by dividing the number of participants who reported a specific behavioral outcome by the total number of participants in the sample, thus yielding a percentage.

Consistent with standard meta-analytic methods (Borenstein, Hedges, Higgins & Rothstein, 2009), effect sizes (proportions) were translated into logits and used in all analyses. Once calculated, results from the analyses (using logits) were then back translated to the proportions (along with corresponding confidence intervals) in order to facilitate interpretation.

Statistical Analysis

Several studies have shown that teacher and student reports of victimization differ (e.g., Cooley, Fite, & Pederson, 2017; Williford, Fite, & Cooley, 2015). Therefore, we conducted separate meta-analyses by informant type (e.g., teacher, student). We also conducted separate meta-analyses by the different types violence (overall violence, physical attack, damage to personal property, offensive remarks, intimidation, verbal threats and any threats).

Mixed-effects models were assumed in the meta-analytic calculations in order to accommodate the variability exhibited by the prevalence. This model involves weighting each effect size by its inverse variance in order to give more weight to the effect sizes obtained from studies with large sample sizes (Borenstein et al., 2009; Sánchez-Meca & Marín-Martínez, 2008). A pooled prevalence and its corresponding 95% confidence interval (CI) were calculated; CIs indicate the degrees of precision as well as the significance of the mean (logit) effect size. Forest plots were constructed to represent the individual and pooled prevalence estimates, with their 95% CIs, and to allow visual inspection for study heterogeneity. In some instances, only three or two studies were available to examine a given construct. In these cases, the pooled prevalence was calculated to improve the score estimation and provide a confidence interval, and forest plots were not constructed.

Further, both the Cochran's Q-statistic and the I^2 index were calculated to check heterogeneity among the studies (Borenstein et al., 2009; Huedo-Medina, Sánchez-Meca, Marín-

Martínez & Botella, 2006). When the effect sizes are homogeneous, the *Q*-statistic follows a chi-squared distribution with *k*-1 degrees of freedom, *k* being the number of studies. A *Q*-statistic with a *p*-value < .05 is indicative of heterogeneity among effect sizes. The degree of heterogeneity among the effect sizes was estimated with the I^2 index, which can be interpreted as the percentage of total variation across the studies due to their different characteristics. I^2 values around 25%, 50%, and 75% denote low, moderate and large heterogeneity, respectively (Higgins & Thompson, 2002).

In order to examine the influence of studies on effect size variability, we conducted analyses of moderator variables when possible (e.g., when there were at least 10 studies to perform statistical analyses). Moderators were examined by means of analyses of variance (ANOVAs) and meta-regressions for categorical and continuous variables, respectively, by assuming a mixed-effects model (Borenstein et al., 2009; López-López, Marín-Martínez, Sánchez-Meca, Van den Noortgate, & Viechtbauer, 2014).

Finally, we examined publication bias as a potential threat to the validity of the pooled prevalence using the Egger test. The Egger test (Sterne & Egger, 2005) is an unweighted simple regression taking the precision of each study as the independent variable (precision being defined as the inverse of the standard error of each effect size) and the effect size divided by its standard error as the dependent variable. A non-statistically significant result of the t-test for the hypothesis of an intercept equal to zero suggests that publication bias is not a threat to the validity of the pooled effect (Sterne & Egger, 2005). When the meta-analysis only included three studies, the Egger test could not be used due to the small number of studies and high heterogeneity between effect sizes across studies (Sterne & Egger, 2005; Sterne, Gavaghan, & Egger, 2000; Thornton & Lee, 2000).

The statistical analyses were conducted using Comprehensive Meta-analysis 3.0 (Borenstein, Hedges, Higgins & Rothstein, 2014). All statistical tests were interpreted assuming a significance level of 5% ($\alpha = .05$), using two-tailed tests.

Results

All of the 24 studies included in this meta-analytic study reported on the prevalence of student violence against teachers, yet various types of teacher-directed violence were examined in each study. Given that not all studies assessed all types of violence, each meta-analysis included a different number of studies ranging from three to thirteen studies.

Characteristics of the Studies

Table 1 displays study characteristics. The studies were conducted around the world, representing a range of different countries, including Finland, Estonia, Israel, Korea, Slovakia, Spain, Taiwan, Turkey, Luxembourg, and the United States. Overall, most of the studies analyzed student violence directed against teachers as reported by teachers ($k = 21$) (rather than students), included non-probabilistic sampling ($k = 13$), and assessed samples that were primarily female.

These 24 studies differed significantly in terms of methodology, using different violence definitions (e.g., bullying, acts of violent, etc.), measurement instruments (primarily, *ad hoc* questionnaire), and recall periods (e.g., last 15 days, last month). Unfortunately, the majority of studies did not provide information regarding mean years teaching, age, ethnicity, sexual orientation, or other sociodemographic characteristics of the participants.

Teacher-Directed Violence by Timeframe and Violence Type

Studies varied in the timeframe used to assess teacher victimization. Studies also varied in terms of the types of violence that were assessed. Based on these variations, we grouped

studies to assess different time periods (e.g., within current or last year, and during career) and examined patterns across types of violence where possible.

Teacher-directed violence within the past two years (teacher report). Fifteen studies reported violence occurring across various timeframes within a two-year period. This includes time periods regarding the last 15 days, last 30 days, 6 months, current or last year, and previous school year). Figures 2 to 9 present forest plots for each meta-analysis of the pooled prevalence of each type of student violence experienced by teachers within the current or past year. Overall, the prevalence of victimization ranged from 20.1% to 75.2%, with a pooled prevalence of 53% (95% CI = 35.77, 69.54, k = 7) (see Fig. 2). The prevalence of victimization for obscene gestures ranged from 25.4% to 51.89%, with a pooled prevalence of 43.93% (95% CI = 38.36.54, 49.66, k = 4) (see Fig. 3); offensive remarks (which included obscene remarks) ranged from 1.8% to 68.20%, with a pooled prevalence of 29.34% (95% CI = 18.54, 43.11, k = 8) (see Fig. 3); for verbal violence, the prevalence ranged from 17% to 44.44%, with a pooled prevalence of 28.67% (95% CI = 18.35, 41.82, k = 4) (see Fig. 4); for damage or theft of personal property, the prevalence ranged from 3.6% to 49.46%, with a pooled prevalence of 16.81% (95% CI = 10.49, 25.83, k = 9) (see Fig. 5); for any type of threats, the prevalence ranged from 2.24% to 56.70% with a pooled prevalence of 15.83% (95% CI = 9.18, 25.92, k = 9) (see Fig. 6); for intimidation, the prevalence ranged from 3.10% to 29.89%, with a pooled prevalence of 9.93% (95% CI = 3.83, 23.38, k = 5) (see Fig. 7); and for physical attacks, the prevalence ranged from 0.67% to 7.70%, with a pooled prevalence of 3.15% (95% CI = 1.85, 5.32, k = 13) (see Fig. 8). Finally, the prevalence for sexual violence ranged from 0.3% (Zeira, Astor, & Benbenishty, 2004) to 7% (Steffgen & Ewen, 2007), with a pooled prevalence of 3% (95% CI = 0, 12, k = 2)

Heterogeneity was evident across all meta-analyses, with I^2 ranging between 92.67% and

99.62%, (see Table 2). Nevertheless, due to the small number of studies and some studies not reporting sociodemographic variables, it was not possible to perform further analyses that might explain the variability of effect sizes for most of the meta-analyses performed. We were only able to conduct analysis of moderator variables for physical attacks (k = 13) by study characteristics (e.g., geographic location and sampling method) and distribution of gender (% female). In particular, weighted ANOVAs and simple meta-regression were used for categorical and continuous moderator variables, respectively, with prevalence of violence as the dependent variable.

The results of the ANOVAs conducted on categorical variables, such as study characteristics (e.g., location and sampling method), showed that the geographic location of studies (USA versus other countries) and sampling method (probabilistic versus convenience sampling) were not associated with physical attacks (see Table 3). In addition, simple meta-regression analyses did not reveal a relationship between prevalence of physical attacks and gender of the participants.

Teacher-directed violence over the course of career (teacher report). Six studies analyzed teacher-directed violence perpetrated by students over the course of the teacher's career (Kauppi & Pörhölä, 2012; Levin et al., 2006; Moon & McCluskey, 2016; Ozdemir, 2012; Özkiliç, 2012; Türküm, 2011). Nevertheless, they also used different definitions of violence and different measures. Figures 10 to 12 present forest plots for each meta-analysis of the pooled prevalence according to each type of student violence experienced by teachers during their career.

Across these six studies, the prevalence of any type of victimization occurring at least once during teachers' careers, ranged from 32.56% to 40.90%, with a pooled prevalence of

37.79% (95% CI = 31.17, 44.90, k = 5) (see Fig. 10). The prevalence of victimization for verbal violence ranged from 4.4% to 28.1%, with a pooled prevalence of 13.98% (95% CI = 7.96, 23.40, k = 4) (see Fig. 11); for damage or stealing personal property, the prevalence ranged from 3% to 10.9%, with a pooled prevalence of 6.92% (95% CI = 2.97, 15.29, k = 3); and for physical violence the prevalence ranged from 3% to 7.22%, with a pooled prevalence of 5.38% (95% CI = 3.62, 7.91, k = 4) (see Fig. 12). As Table 2 shows, heterogeneity was evident across all meta-analyses, with I^2 ranging between 81.01% and 97.09%. However, due to the small number of studies, it was not possible to perform an analysis of the characteristics of the studies that might explain the variability of effect sizes.

Teacher-directed violence within the last year (student report). Three studies analyzed student violence directed against teachers as reported by students. These particular studies all focused on physical violence within the last year. The perpetration of at least one act of the physical violence against teachers ranged from 1.2% to 10.53% with a pooled prevalence' of 3.64% (95% CI = 1.36, 9.38, k = 3). The effect sizes showed large heterogeneity ($Q(2)$= 283.07, $p < 0.001$, I^2 = 99.29). Due to the small sample size of the studies analyzed, it was not possible to perform analyses by moderator variables that could potentially explain the presence of heterogeneity.

Publication Bias

In order to assess whether publication bias might be a threat to the validity of the results of our meta-analyses, the Egger test was applied to each of the meta-analyses consisting of more than three studies. The Egger test reached the statistical significance only for the meta-analysis conducted in regards to offensive remarks (p = .006) and intimidation (p = .030) experienced within the current school year or last year. It is possible that these results might be explained by

the small number of studies included in the meta-analysis and the high heterogeneity among studies. Consequently, the results led us to discard this threat for our meta-analytic results (see Table 4).

Discussion

This study examines the prevalence of teacher-directed violence using meta-analysis and is the first study to our knowledge that employs such an analytic strategy to examine this problem. The research literature examining teacher-directed violence is relatively small compared to the vast literature on violence in schools. This investigation adds to this body of research by generating prevalence estimates of teacher-directed violence across a range of timeframes, victimization types, reporters, and international contexts. A better understanding of the extent of the problem can inform the development of effective school-based interventions and social policy strategies.

Prevalence of Teacher-Directed Violence

The results of the meta-analyses performed in this study indicate that 20-75% of teachers (53% overall) report experiencing student-generated violence within a two-year timeframe, underscoring the widespread nature of this problem within school settings. Teacher-directed violence is an issue around the world and needs to become a standard part of assessment within the larger context of school violence, climate, and intervention. The wide variability in the range of rates across studies may potentially highlight variations in definitions and measurement and the need for the development and use of a gold standard, multidimensional assessment tool for teacher-directed violence.

Contrary to our expectation, the prevalence of violence experienced over the course of one's teaching career was lower at 33%-41% (38% overall) compared to experiences of

victimization within a two-year timeframe. This finding underscores the need to consider the substantial variability across these studies alongside the pooled prevalence rates. It is also possible that studies relying on career timeframes differed methodologically (e.g., samples, measurement) from studies relying on shorter timeframes. For example, in this analysis, the four studies that used a career timeframe consisted of samples outside of the United States (e.g., Turkey, Finland). In contrast, studies relying on shorter timeframes were often conducted in the United States. Measurement may have also played a role. For example, some studies ask participants to report on the frequency of victimization whereas other studies ask participants to report on whether the incident ever occurred (e.g., Kõiv, 2011). Future cross-sectional studies examining prevalence rates should consider assessments that rely on both short-term (e.g., 6-month, 1-year) and longer timeframes within the same study, as well as measures that are sensitive to timeframe (e.g., frequency versus dichotomous), context, and recall issues.

Types of Victimization

In terms of types of teacher-directed violence assessed, the most common forms of student-generated violence that occurred within the past two years, in descending order (with corresponding pooled prevalence), were obscene gestures (44%), offensive/obscene remarks (29%), verbal violence (29%), damage or theft of personal property (17%), intimidation (10%), physical attacks (3%), and sexual violence (3%). Broadly, these findings illustrate the general patterns in the literature, such that victimization rates decrease as the severity and intrusive nature of the violent act increases (e.g., Tiesman et al., 2013). However, previous studies have often examined specific forms of victimization (e.g., bullying; Kauppi & Pörhölä, 2012) or have examined broader victimization categories (e.g., physical violence, verbal violence), which does not yield a detailed picture of the problem. Our findings offer a more comprehensive

examination of the prevalence of teacher-directed violence across specific types of victimization. Yielding prevalence rates for specific forms of victimization can help to guide targeted school-based interventions.

While the research examining teacher-directed violence has primarily examined prevalence rates, theory development is a next step that can help to explain these rates, generate predictions, and inform intervention strategies. As one example, Finkelhor and Asdigian's (1996) notion of target vulnerability holds that perpetrators are more likely to target individuals who are more vulnerable (e.g., older persons). Research is needed that tests such theories within the context of teacher-directed violence. Further, while our findings highlight disparate rates of teacher-directed violence across victimization types, the extent to which frequency and severity are linked to negative outcomes remains unclear. For example, some types of victimization that occur less frequently (e.g., intimidation, physical violence) are likely to be linked to negative outcomes. Likewise, other forms of victimization, such as obscene gestures and comments, though seemingly less severe, may occur with greater frequency and can also result in serious negative outcomes. Theories need to account for victimization types, severity and frequency, settings, perpetrator, context, demographics, and outcomes.

Interestingly, we found student reports of teacher-directed physical violence to mirror teacher reports. So, although there are some previous studies in which teacher and student rates differ (e.g., Cooley, Fite, & Pederson, 2017; Williford et al., 2015), the general pattern across the literature suggests similar rates. For example, the pooled prevalence of physical violence directed against teachers was 3.64 (student report) as compared to 3.15 as reported by teachers. While these rates may appear low, the severity of physical violence needs to be considered, along with its harmful consequences. From this standpoint, these rates should still generate cause for

concern, especially when considering that physical violence is not likely to occur as an isolated event, but rather, teachers often experience multiple forms of violence (Martinez et al., 2016).

Implications for Research and Practice

Research. The research examining teacher-directed violence is within its early stages, and there is a need to develop consistent definitions and methodologies that can guide the direction of this body of work. The studies that comprised this review varied significantly in terms of definitions, measurement, and timeframes. In many instances studies did not provide information regarding years of teaching experience, age, ethnicity or other sociodemographic characteristics. Thus, we need to establish a standard for how to define and assess violence directed against teachers in order to be able to compare studies across schools, districts, regions, and countries. Next, most studies in this body of work are cross-sectional, and longitudinal studies are needed that can help us to better understand how teachers experience victimization across time. Previous research estimates that approximately 17% of new teachers leave the profession within the first five years of teaching (Gray & Taie, 2015). Longitudinal studies can help to explain this pattern and examine the extent to which teachers who are victimized early in their careers are more likely to leave the profession, what types of violence are most predictive of teacher turnover, and what types of school responses, contextual factors, and interventions lead to sustained versus reduced violence across time. While this study examined prevalence rates, as the literature grows, future analyses can examine additional moderating effects, such as the contribution of gender and years of teaching experience. Examining moderating effects within meta-analytic studies can allow us to test competing theories and to better understand patterns of teacher-directed violence.

Practice. This study also has several implications for practice. This study provides

supporting evidence of the international problem of teacher victimization, suggesting that the discourse concerning this problem by policy-makers and practitioners should be framed within an international context while also accounting for local nuances. Further, this study demonstrates that less severe forms of teacher-directed violence, such as obscene remarks, are more prevalent than more intrusive forms of violence, such as physical attacks. More emphasis should be placed on schools providing pre-service training that can help teachers to respond more effectively to these less severe yet pervasive forms of violence. In conjunction, clear policies and comprehensive school-based interventions that promote a positive school climate are needed. Such interventions should include a wide range of school stakeholders (e.g., students, teachers, paraprofessionals, staff, parents, administrators); all stakeholders - not just students - need training in addressing and responding to violence. School and district-wide policies should also be clearly articulated to all members of the school community.

Limitation and Strengths

Several limitations to this study should be noted. First, this meta-analysis is based on a small number of studies, given that the field is in its early stages. This limits our ability to examine moderating variables that could explain variability across studies. Second, studies in this analysis used different definitions of violence and timeframes to assess teacher-directed violence. We took these variations into account by examining different types of violence and timeframes; yet, more consistency across studies and better measurement approaches will improve our ability to draw conclusions as the field grows. Third, the studies included in this analysis were written in English, Spanish, or Italian, which could have potentially excluded some international studies. Fourth, this review excluded teacher-directed violence studies that examined perpetrators other than students, based on limited studies examining various

perpetrators. Teachers' experiences with colleagues, administrators, and parents affect their experiences in schools (e.g., McMahon et al., 2014), and future research should account for the entire social setting that affects educators and students in our schools.

Nevertheless, several strengths should also be noted. Foremost, this study uses a meta-analytic approach to study teacher-directed violence, pooling estimates across a wide-range of studies. Second, international studies are included in this analysis and therefore are not country-specific, which strengthens the external validity of our findings. Finally, we examine the prevalence of violence perpetrated against teachers across various timeframes, reporters (e.g., teachers, students), and types of victimization which offers a more nuanced understanding of this problem that can ultimately guide school-based research, policy, and practice.

Conclusion

This study represents the first meta-analysis investigating the prevalence of student violence directed against teachers. This work provides insight into the patterns we find across studies that have been conducted around the world. Although violence against teachers has received international attention, there is still a dearth of research on this topic. We need to address violence across multiple perpetrators and multiple systems. This area of research is in its beginning stages and will not progress significantly until we collaborate across borders to established agreed-upon definitions, develop and validate gold standard instruments, and work with our educational institutions to improve reporting and responses to violence.

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Table 1
Characteristics of the Studies (k = 24)

Study/ location	Sampling method	Sample	Mean age	% female	Mean years teaching	Setting	Instrument	Type of violence (Outcomes)	Recall period	TQS (0-9)
Berg & Cornell, 2016 USA	Convenience	9,134T	NR	75	Range=1 to >10	Middle Schools (grades 7-8)	Ad hoc survey	Threats Stole/damage to personal property Physical attack, Said rude/ insults	During school year	6
Bounds & Jenkins, 2016 USA	Convenience	114T	NR	85	Range: 1 semester - 39 years	K-12	APA CVDATTF	Verbal threats Damage to personal property Physical attack Intimidation Cyberharassment Others	Last 3-6 months	5
Casteel et al. 2007 USA	Convenience	22,872 T	NR	NR	Mdn=20.6	Public elementary, middle & high schools	Employer's Report of Occupational Injury or Illness	Nonfatal assault injuries	One year	4
Chen & Astor, 2008 Taiwan	Probabilistic	14,022S	NR	50.2	-	Elementary (grades 4-6), junior high (grades 7-9) & high schools (grades 10-12)	Ad hoc questionnaire	Physical violence Others	Last year	5
Dworkin et	Convenience	291T	Mdn=	68.4	Mdn=10.	Elementary	Ad hoc	Stolen,	Last year	3

al. 1988 USA			35.8		1	& high schools and other	questionnaire	Obscene gestures, Swornat, Threath of physical harm, unspecific threaths, Assault		
Dzuka & Dalbert, 2007 Study 1 Slovakia	Probabilistic	364T	NR	NR	NR	Secondary schools	Ad hoc questionnaire	Harmful verbal behaviors Harmful physical behaviors Damage to personal property Others	Last 30 days	7
Dzuka & Dalbert, 2007 Study 2 Slovakia	Probabilistic	108T	NR	NR	NR	Secondary schools	Ad hoc questionnaire	Harmful verbal behaviors Harmful physical behaviors Damage to personal property Others	Last 15 days	6
Fox et al. 2010 USA	Convenience	779T	NR	82	>Over 10 (60.4%)	Pre-K/ Kindergarten, Kindergarten and grades fro, 1 to 12	WB-C Item about violence victimization	Bullying Violent acts without specified perpetrator	During academic year	5
Gregory et al. 2012 USA	Probabilistic	2,870T	NR	64	>More than 5 years (64%)	High schools (grades 9-12)	Gottfredson's Scale	Physical attack Damage to personal property Theft personal property	Past school year	7

								Threats Obscene remarks or gesture		
Jaureguizar et al. 2013 Spain	Convenience	687S	14.7	50	NR	Secondary schools	Behavior Toward Authority	Physical violence Psychological violence	Current year	6
Kauppi & Pörhölä, 2012 Finland	Convenience	215T	NR	76.2	NR	Primary, secondary & comprehensive schools	Ad hoc questionnaire	Verbal bullying Physical bullying Others	During career	7
Khoury-Kassabri et al. 2009 Israel	Probabilistic	16,604S	NR	49.4	NR	Secondary schools	Benbenishty questionnaire	Physical violence Others	Last month	7
Kõiv, 2011 Estonia	Probabilistic	613T	43	85.6	NR	Basic schools & gymnasium	Ad hoc questionnaire based on typology of workplace bulling (Rayner & Hoel, 1997	Threats Offensive remarks Intimidation Physical attack Others	Last 6 months	5
Kõiv, 2015. Study 1 Estonia	Probabilistic	573T	42.9	85.5	NR	Basic schools & gymnasium	Ad hoc questionnaire based on typology of workplace bulling (Rayner & Hoel, 1997)	Threats Offensive remarks Intimidation Physical attack Others	Last 6 months	7

Kõiv, 2015. Study 2 Estonia	Probabilistic	564T	43.8	84.4	NR	Basic schools & gymnasium	Ad hoc questionnaire based on typology of workplace bulling (Rayner & Hoel, 1997	Threats Offensive remarks Intimidation Physical attack Others	Last 6 months	7
Levin et al. 2006 USA	Convenience	341T	Mdn= 47	79	Mdn=9.6	-	Report sources: employee health, security, personnel department records, and management vendor	Assault injuries (verbal acts, threats, physical acts)	3-years	4
McMahon et al. 2014 USA	Convenience	2,998T	46.5	83.5	16.9	K-12	Ad hoc questionnaire APA CVDATTF	Verbal threats Damage to personal property, Physical attack Intimidation Cyber harassment Others	Current or last year	5
Moon & McCluskey, 2016 Korea	Probabilistic	996T	NR	NR	NR	Middle & high schools	Ad hoc survey	Verbal Threats Damage to personal property Physical attack Cyber-bullying Others	Last 2 years	6
Ozdemir,	Convenience	902T	>mor	52.8	NR	Elementary	Ad hoc	Emotional, verbal,	During	5

2012 Turkey			e than 30 years (71.6 %)			schools (grades 6-8) and Secondary Schools (grades 9 - 12)	questionnaire	physical and sexual violence	career	
Özkiliç, 2012 Turkey	Convenience	540T	NR	NR	NR	Primary & high schools	Ad hoc questionnaire	Verbal bullying Physical bullying Damage to personal property Others	During career	5
Steffgen & Ewen, 2007 Luxembourg	Probabilistic	399T	42	57.4	16	Secondary school	Questionnaire on violent behavior against teacher (Tillmann et al. 1999)	Physical assaults Damage objects Strong verbal attacks Sexual harassment Defamation Theft of objects Telephone terror	Last school year	5
Terry, 1998 USA	Convenience	101T	NR	NR	R	Urban high schools	Ad hoc questionnaire	Physical violence	During preceding term	3
Türkum, 2011 Turkey	Convenience	345T	NR	51.9	>More than 10 years (76.7%)	High schools	Ad hoc questionnaire	Verbal an emotional violence	During career	3
Zeira et al. 2004 Israel	Probabilistic	1,521T	NR	65.8	14.6	Primary & high schools	Ad hoc questionnaire	Threats Damage to personal property Offensive remarks Physical attack Others	Last month	6

Note. TQS = total quality score. NR= Not Reported. > = majority. Mdn = Median. Sample: T = Teachers; S = Students. APA CVDATTF = APA Classroom Violence Directed Against Teachers Task Force (McMahon et al., 2014); SASS = Schools and Staffing Survey.

Table 2

Heterogeneity of Effect Sizes of Student Violence Against Teachers by Type of Violence

Outcomes	*k*	*Q*	*df*	*p*-value	I^2
Victimization current or last year					
Any violence	7	58	6	<.001	98.97
Obscene gestures	4	40.91	3	<.001	92.67
Offensive remarks	8	1827.82	7	<.001	99.62
Verbal violence	4	86.28	3	<.001	96.52
Damage/Steal personal property	9	1274.96	8	<.001	99.37
Any threats	9	1607.25	8	<.001	99.50
Intimidation	5	280.30	4	<.001	98.57
Physical attack	13	717.39	12	<.001	98.33
Victimization during career					
Any violence	5	57.49	4	<.001	93.04
Physical violence	4	15.79	3	0.001	81.01
Verbal violence	4	102.91	3	<.001	97.09
Damage/steal personal property	3	37.37	2	<.001	94.65

Note. *k*: number of studies; *Q* = Cochran's Q statistic of heterogeneity; *df* = degrees of freedom; I^2 = index of heterogeinity.

Table 3. Results of the weighted ANOVAs for the influence of categorical variables on the effect sizes.

			95% CI		
Moderator variable	*k*	P_+	*P*l	*P*u	ANOVA results
Geographic location:					$Q_B(1) = 0.224$, $p = .636$
USA	6	3.6	1.6	4.7	$R^2 = 0.0$
Other countries	7	2.8	1.7	4.7	$Q_W(11) = 708.898$, $p < .001$
Sampling method:					$Q_B(1) = 0.253$, $p = .615$
Probabilistic	8	2.9	1.9	4.2	$R^2 = 0.0$
Convenience	5	3.7	1.4	9.6	$Q_W(11) = 698.990$, $p < .001$

k : number of studies. P_+: mean effect size. *P*l and *P*u: 95% lower and upper confidence limits around P_+. Q_B: between-categories *Q* statistic. Q_W: within-categories *Q* statistic. R^2: proportion of variance accounted for by moderator variable.

Table 4
Analyses of Publication Bias with the Egger Test.

Outcome	*k*	Intercept	SE	T	*df*	*p*-value
Violence within last year or current year						
Any violence	7	-10.61	6.33	1.68	5	.154
Obscene gestures	4	-2.07	4.07	0.51	2	0.66
Offensive remarks	8	-21.54	5.28	4.08	6	.006
Verbal violence	4	11.83	4.73	2.50	2	.130
Damage/Steal personal property	9	-7.93	5.88	1.35	7	.219
Any threats	9	-3.06	8.60	0.36	7	.732
Intimidation	5	-10.34	2.65	3.90	3	.030
Physical attack	13	-2.41	3.42	0.71	11	.496
Violence experienced during career						
Any violence	5	-5.17	6.47	0.80	3	.482
Physical violence	4	-1.89	5.70	0.33	2	.772
Verbal violence	4	-11.95	4.48	2.66	2	.117

Note: SE: Standard error; T: T-test; *df:* Degrees of freedom.

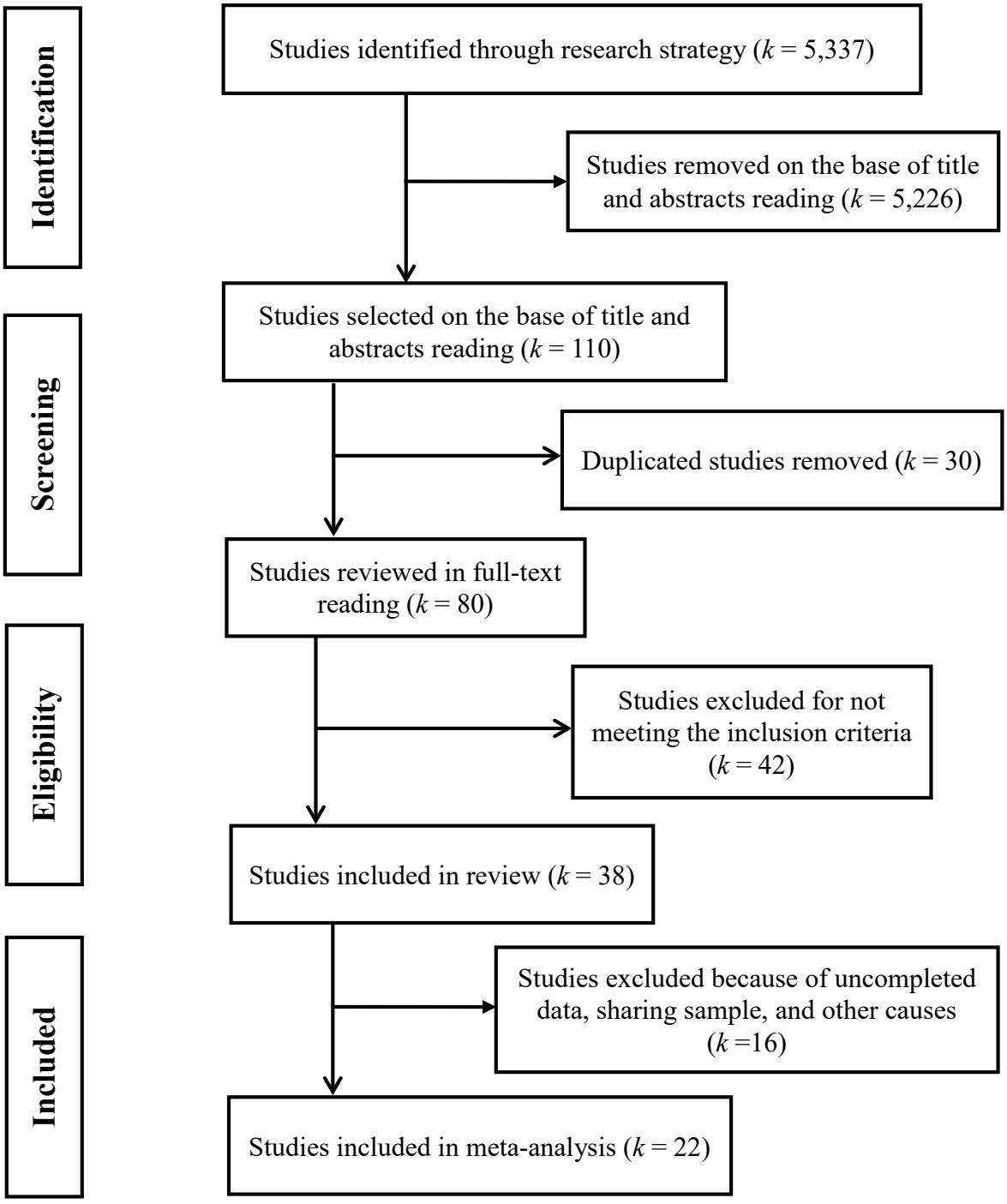

Figure 1. Flowchart of the Process for Selecting Studies for the Meta-analysis

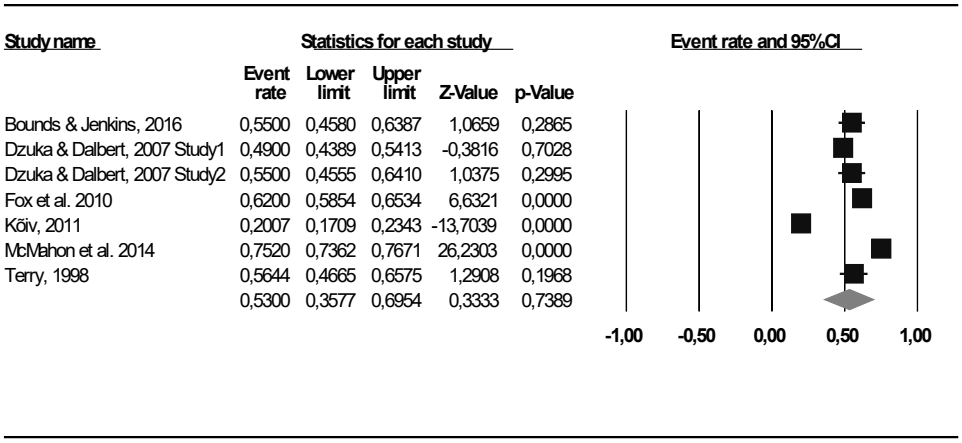

Figure 2. Forest plot of the prevalence of victimization in any violence

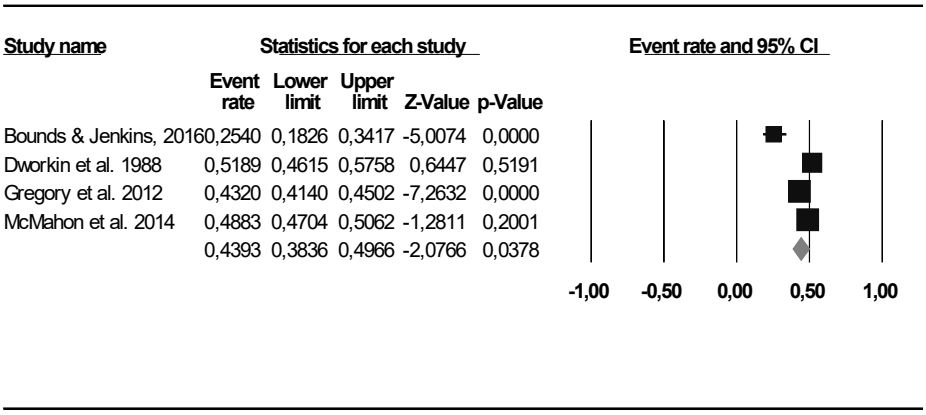

Figure 3. Forest plot of the prevalence of victimization of obscene gestures

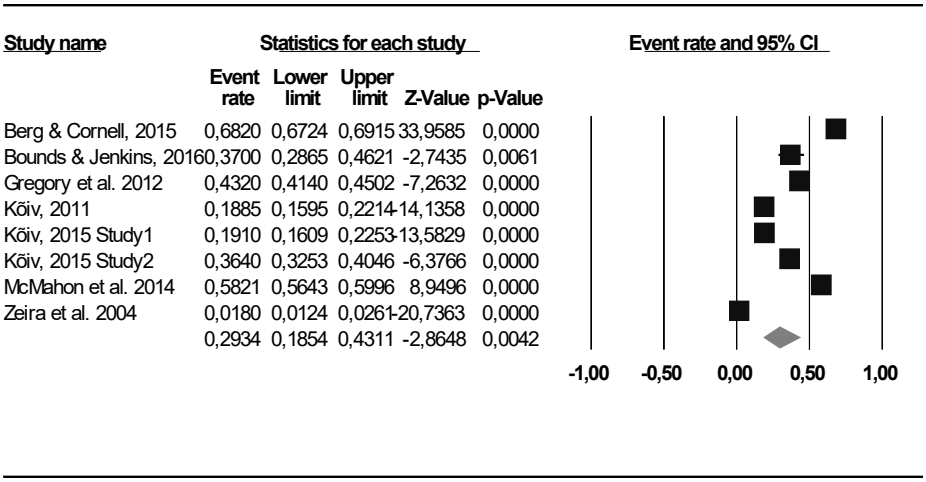

Figure 4. Forest plot of the prevalence of victimization of offensive remarks

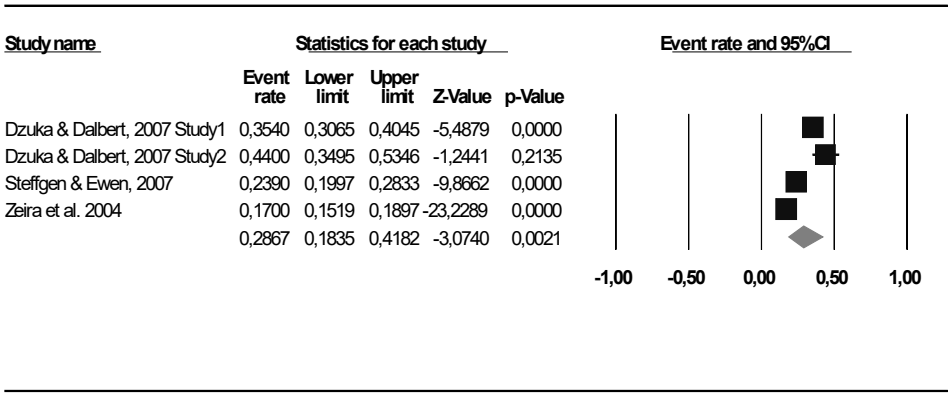

Figure 5. Forest plot of the prevalence of victimization of verbal violence

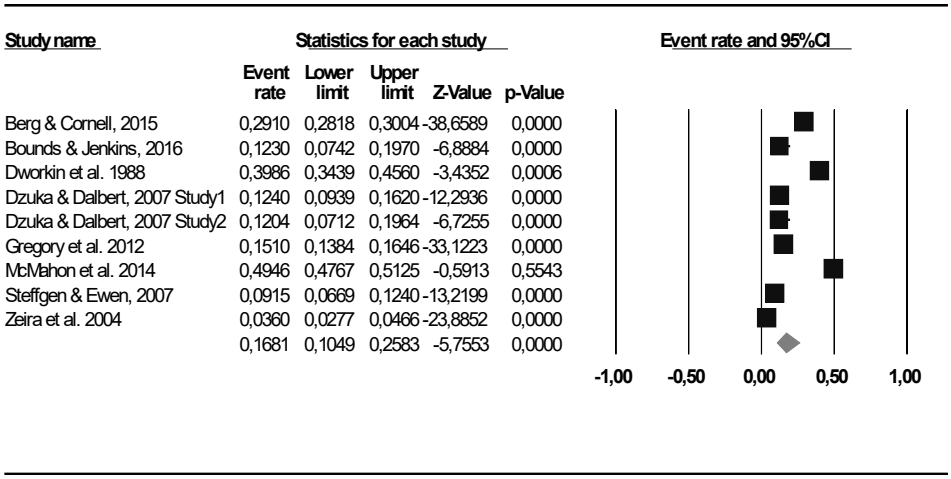

Figure 6. Forest plot of the prevalence of victimization in damage or steal personal property

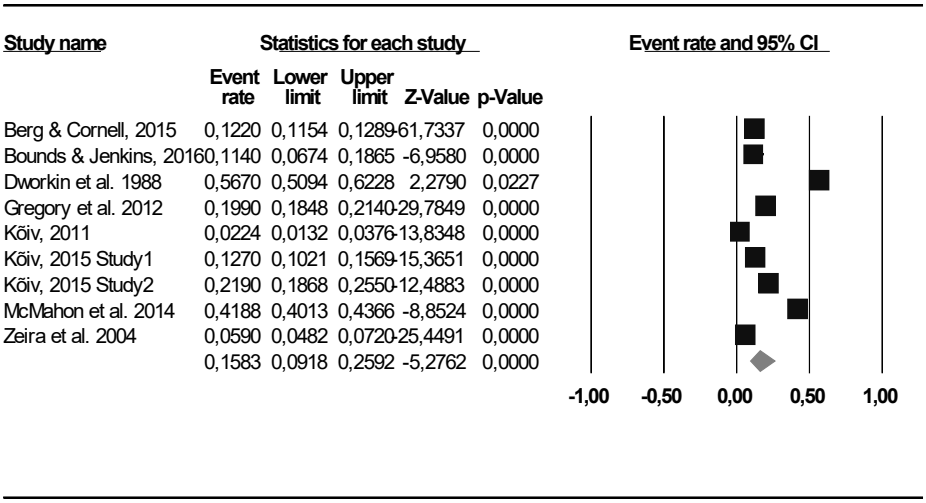

Figure 7. Forest plot of the prevalence of victimization in any type of threats

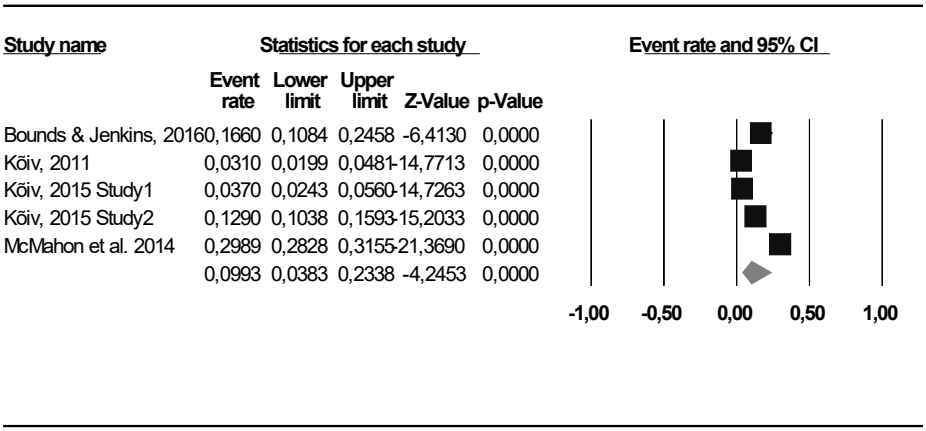

Figure 8. Forest plot of the prevalence of victimization in intimidation

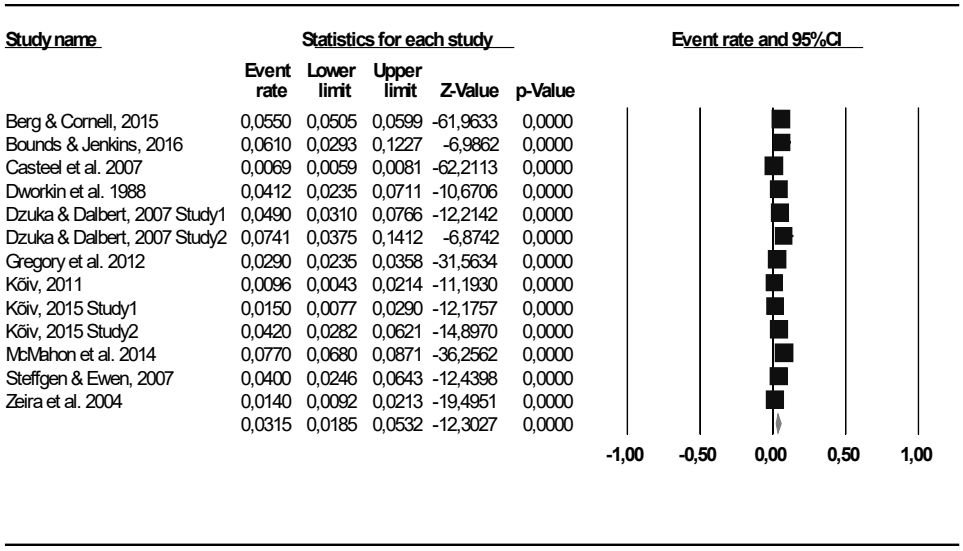

Figure 9. Forest plot of the prevalence of victimization in physical attack

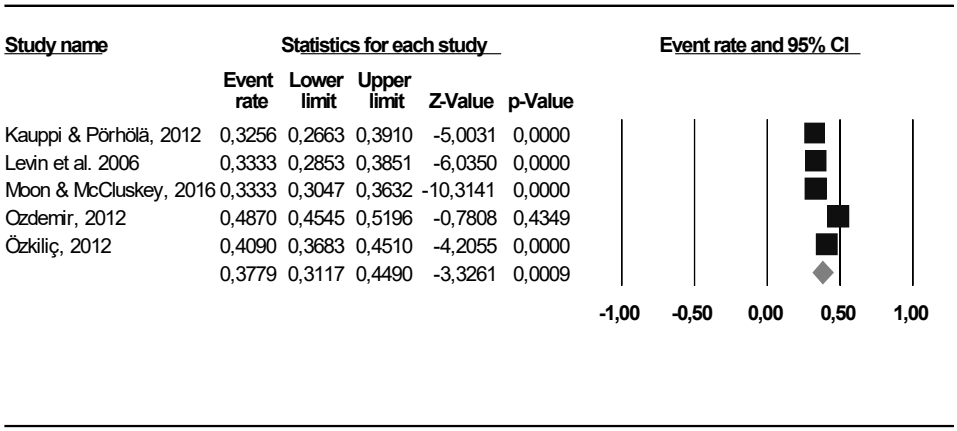

Figure 10. Forest plot of the prevalence of victimization of any violence during career

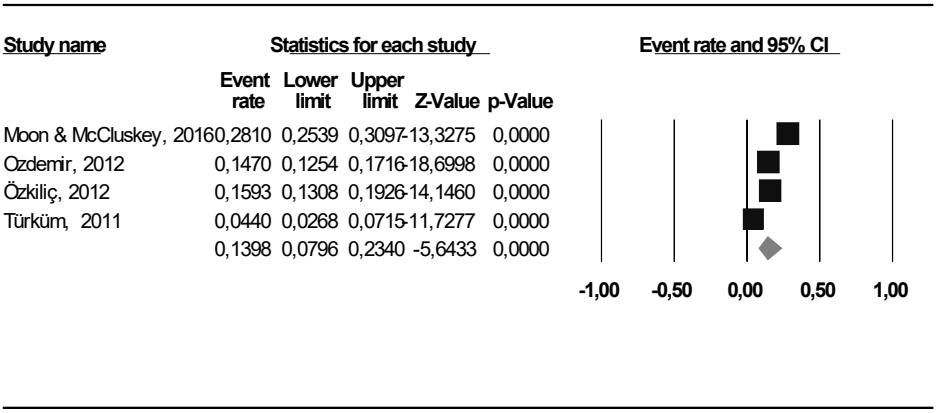

Figure 11. Forest plot of the prevalence of victimization of verbal violence during career

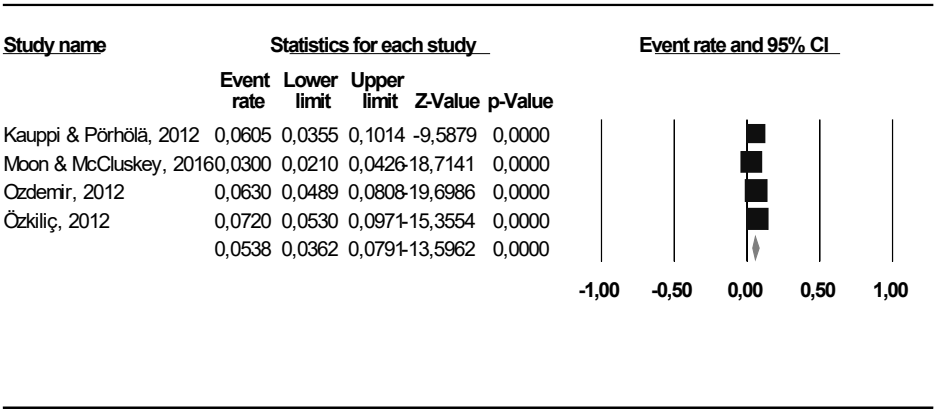

Figure 12. Forest plot of the prevalence of victimization of physical violence during career