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Physical Education Teachers' Perceived Sexual and Physical Violence and Work-related Stress

This study investigated the relationships between sexual (verbal and non-verbal sexual harassment) and physical violence against physical education (PE) teachers and work-related stress. Participants were 175 (females 122, males 53) Finnish PE teachers aged between 27 and 62 years. The findings showed that 1) higher perceived physical violence was positively associated with higher perceived non-verbal sexual harassment and work-related stress; 2) teachers with a sport science degree perceived higher work-related stress mediated by physical violence than other teachers; 3) longer-serving PE teachers reported lower verbal sexual harassment than teachers with less teaching experience; and 4) female PE teachers reported higher work-related stress than male teachers. These results indicated that violence against PE teachers is multidimensional. To prevent work-related stress in PE teachers, school authorities could encourage teachers to report student threats as a violence prevention strategy in schools and provide appropriate support for teachers who have been victims of violence.

Keywords: school; harassment; victimization; verbal; non-verbal; structural equation model

Introduction

Violence against teachers is a serious cause of work-related stress in the profession (Bounds & Jenkins, 2018; Espelage et al., 2013; Pas et al., 2012). Physical education (PE) is unique in that, unlike other school subjects, PE teachers usually help students through physical contact or touching to complete movements or prevent injury when performing movements (Öhman & Grunberg-Sandell, 2015). PE teachers can also be victims as well as perpetrators of physical violence and sexual harassment (Steffgen & Ewen, 2007). Past studies on violence in schools have focused on violence among students (Bounds & Jenkins, 2018; Gerberich et al., 2014; Mármol et al., 2018) to the neglect of sexual and physical violence against teachers by students in school PE classes (Taylor & Garratt, 2010). This is an important issue, as the consequences of student aggression against teachers can be serious (Maeng et al., 2020). The present study aimed to extend previous findings by investigating the associations between two types of interpersonal violence, sexual and physical violence, and work-related stress from the perspective of PE teachers.

In Finland, the site of this study, all schools follow a national PE curriculum, which specifies the objectives and core contents of PE. Education is publicly funded at all levels while schools are responsible for the teaching arrangements and the effectiveness and the quality of the education given. Currently, comprehensive school students (grades 1 to 9) are required to have two or three PE classes per week. Each class, including active and non-active periods, lasts 45 minutes. Schools may, if they wish, provide additional classes. Schools are also free to determine how students are grouped (Finnish National Agency for Education, 2016). Elementary school children in grades one and two are typically taught in mixed PE groups by their class teachers. Thereafter, in elementary (grades three to six) and in middle (grades seven to nine) and high school,

students are usually taught in gender-based groups, girls by female subject teachers and boys by male subject teachers.

In this study, interpersonal violence refers to both sexual and physical violence. Sexual harassment as a form of sexual violence (Ferrara et al., 2019; Krug et al., 2002) ranges from unwanted, threatening, or offensive touching (physical) to gesturing (non-verbal) and inappropriate jokes or offensive comments (verbal) based on stereotypes, sex, gender identity, or sexual orientation (Bendixen et al., 2018; Fasting, 2015). Verbal sexual harassment includes, for example, derogatory sexual remarks, sexual jokes, sexual questions, requests for intercourse, and the spreading of rumors (Bendixen et al., 2018; Chiodo et al., 2009), whereas non-verbal sexual harassment comprises sexually suggestive facial or bodily signals, whistling, winking, leering, howling, or making kissing sounds (Bendixen et al., 2018). The few previous studies on the sexual harassment of teachers found that the phenomenon is relatively infrequent in schools. For instance, in a nationwide internet-based survey in Dutch secondary schools, about three percent of teachers reported sexual harassment (verbal, non-verbal, or physical) by students (Mooij, 2011). In a survey conducted by the Institute of Criminology and Legal Policy (Salmi & Kivivuori, 2009), nearly three percent of Finnish school teachers reported harassment by students and just one percent of K-12 teachers in the US reported that sexual harassment in their workplace is very or extremely common (Kurtz et al., 2018). However, no centralized database exists on sexual harassment and sexual violence in schools (Women and Equalities Committee, 2016). Furthermore, little research on violence against teachers, especially on sexual harassment, has been published (Lahelma, et al., 2000; Mooij, 2011). Thus, to extend the few previous findings, studies on sexual harassment against teachers are clearly needed.

Physical violence is defined as the intentional, one-time or repeated rough infliction of pain or bodily injuries by another person that involves a potential risk for visible or non-visible physical harm and consequences (Krug et al., 2002). Previous studies have shown that physical violence against teachers varies somewhat across countries. For example, a national study conducted in the United States revealed that 44% of K-12 teachers reported at least one experience of physical violence in the current or past year (McMahon et al., 2014). A study conducted in Slovakia (Dzuka & Dalbert, 2007) found that 5% of secondary school teachers had experienced physical violence within the past thirty days, while about 26% of elementary and middle school teachers in Finland reported that they had occasionally been subjected to verbal, non-verbal, and physical assaults by students (Kauppi & Pörhölä, 2012). Cultural and school-level differences aside, the overall prevalence of violence against teachers appears to be similar in many countries (Dzuka & Dalbert, 2007; James et al., 2008; Kauppi & Pörhölä, 2012; Moon & McCluskey, 2018). However, despite research findings that student aggression is a crucial factor underlying teachers' work-related stress (Espelage et al., 2013), research on the topic remains scarce.

According to Derogatis (1987), stress is a state of psychological pressure influenced by personality (e.g., behavior, attitudes, coping mechanisms), environmental factors (e.g., occupational satisfaction) and emotional responses (e.g., anxiety, depression). In short, stress is an outcome of individuals' inability to cope with their surrounding environment (Dobson & Smith, 2000). Short-term and temporary stress can be positive, but being under continuous stress at work may cause, for example, job dissatisfaction and general exhaustion in teaching jobs (Gillespie et al., 2001). To avoid such negative effects of stress, previous findings indicate that teachers' occupational well-being depends on the presence of positive factors such as good relations with students and the

absence of negative factors such as difficult relationships with students (Aldrup et al., 2018) and teacher-directed violence (Galand et al., 2007). However, studies have shown that teaching is a high-stress profession. For instance, the Teacher Wellbeing Index (2019) showed that 73% of school teachers in the UK reported feeling stressed during the current year. Similarly, approximately 61% of US school teachers felt stressed at work (Educator Quality of Work Life Survey, 2017), and 43% of Finnish school teachers reported often or very often experiencing work-related stress during the past year (Opetusalan työolobarometri, 2017). Many studies have found that violence against teachers by students is directly related to teacher stress levels and higher rates of burn-out (e.g., Bounds & Jenkins, 2018; Espelage et al., 2013; Pas et al., 2012). Despite this, and the fact that PE is very different in its nature from other school subjects, the associations between different types of violence and PE teachers' work-related stress have not yet been investigated.

One of the primary shortcomings of the existing body of research is that most studies have focused on student experiences of violence (Espelage et al., 2013; Galand et al., 2007). Teachers have been regarded as a source of information about student behavior rather than as witnesses or victims of school violence (Nicolaidis et al., 2002). In addition, quantitative research among teachers has usually focused only on one or a few types of violence (Buda, 2009; Mooij, 2011). The present study contributes to filling these research gaps by investigating the associations between sexual and physical violence against teachers and perceived work-related stress. Since violence against teachers has previously been explained by teacher's gender (Mooij, 2011; Salmi & Kivivuori, 2009), years of teaching experience (Lokmić et al., 2013), student age (Chen & Astor, 2009; Dzuka & Dalbert, 2007), school setting (Bounds & Jenkins, 2018), and pedagogical choices (Mooij, 2011), the covariables of teacher's gender, teaching experience,

teaching level, region, and type of tertiary education were included in the present analysis. This information may be of value in improving schools' procedures and policies aimed at preventing violence against teachers.

The specific aim of this study was to investigate the relationships between teacher-directed non-verbal sexual harassment, verbal sexual harassment, and physical violence, and work-related stress in a sample of PE teachers. In addition, the covariate effects of teacher's gender, teaching experience, teaching level, region, and type of tertiary education on teacher-directed non-verbal sexual harassment, verbal sexual harassment, physical violence, and work-related stress were tested (Figure 1). Based on previously established associations, physical violence was expected to be positively linked with higher work-related stress. Female PE teachers were expected to have higher work-related stress levels, and PE teachers with less teaching experience were expected to report more sexual harassment and physical violence than more experienced counterparts.

Method

Participants and Procedure

The sample comprised 175 PE teachers aged between 27 to 62 years ($M = 44.8 \pm 9.2$ years) recruited across eighteen regions in Finland (Table 1). Nearly 96% of participants reported themselves as heterosexual, four participants as mostly heterosexual (2.3%) and three participants as homosexual or other (1.7%). Mean teaching experience was 16 years, ranging from one to 38. Data were collected anonymously by a digital survey between September and November 2018. The link to the online survey was published on the website of the Association of Physical and Health Educators in Finland. It was also directly sent to individual PE teachers and school principals. Prospective participants

were informed that participation was voluntary and anonymous. They were also informed on the opening page of the online survey about the objectives and methodology of the study, potential disadvantages of participating in the study, data processing methods to be used, and the channels through which the study results would be published. To move on from the opening page, participants had to provide their consent by ticking a box. Participants were encouraged to answer honestly and assured that their responses were confidential. On completion of the survey, participants' data were automatically saved on the digital database of the local university and processed by the researchers. Study approval was obtained from the ethics committee of the local university.

Measures

Teachers provided details of their gender, tertiary education, region, level of teaching, and years of teaching experience using a structured response format. Previous tertiary education comprised six options (Master of Sport Science, Bachelor of Sport Science, Master of Health Science, sport instructor, Master of Education with specialization in PE, Master of Education without specialization in PE), level of teaching seven options (elementary one to six, middle school seven to nine, high school, vocational school, university or university of applied sciences, combined elementary and middle school one to nine, and combined middle and high school), and region included all 18 geographical regions of Finland. Teaching experience was measured with the direct question "*In total, how many years you have worked as a PE teacher during your work career?*" and the responses were rounded to the nearest year.

Sexual (verbal and non-verbal sexual harassment) and physical violence against teachers in the school PE context were assessed using an eight-item scale derived from

previous harassment studies. The item stem was: “*During the last school year, how often have the students in your groups...*” Verbal sexual harassment was measured using a latent variable including the following items modified (y1-y5) from the harassment studies of Witkowska and Kjällberg (2005), Dahlgvist et al. (2016), and Peter et al. (2016) on adolescents in the school context: “*Spread sexually colored rumors about you,*” “*Called you names or insulted you in a degrading, sexually colored way,*” “*Called you a slut,*” “*Asked about your gender or your sexual orientation in an inappropriate context,*” and “*Commented on your gender or your sexual orientation in an offensive way.*” Non-verbal sexual harassment was measured using a latent variable including the following two modified items (y6-y7) from the Sexual Experiences Questionnaire (SEQ—DoD) by Fitzgerald et al. (1999): “*Gestured or signaled to you in a sexually charged or suggestive way (e.g., hand signs, body language)*” and “*Made sounds that you perceived as inappropriate or sexually colored (e.g., shouted after you, whistled, gasped or smacked).*” Because the sexual harassment variables have not been previously used in a school PE context, confirmatory factor analysis was performed. Physical violence was assessed using a single item: “*Pushed, bumped, slapped, pinched, and punched or otherwise physically assaulted you.*” Participants rated the frequency of each incident over the past year on a scale from *never (1)* to *almost daily (5)*.

Work-related stress was measured using a direct question “*Have you felt this kind of stress because of your work as a teacher during the previous or current school year?*” The introduction preceding the item was derived from Elo et al. (2003), who described stress as a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his or her mind is troubled all the time. The responses were rated using a five-point Likert-scale ranging from *not at all (1)* to *very much (5)*.

Data Analyses

First, normality of the distribution, outliers, and missing values were examined. Correlation coefficients, means, and standard deviations were calculated for each study variable. To test the relationships between the covariables (teacher's gender, teaching level, region, tertiary education, teaching experience), with non-verbal and verbal sexual harassment, physical violence, and work-related stress, a path model was implemented. In addition, indirect effects between work-related stress and the covariables through the sexual harassment variables were tested by adding the sexual harassment variables one by one as mediators into the model. Gender differences were examined using a two-group protocol provided by Muthén and Muthén (2013), in which two nested models can be tested by constraining subsequent parameters to be equal.

Chi-square test (χ^2) was used to test the overall goodness-of-fit of the model. A non-significant difference ($p > .05$) between the observed distribution and the theoretical distribution demonstrates acceptable fit of the data. To determine the suitability of the model, the standardized root mean square residual (*SRMR*), the root mean square error of approximation (*RMSEA*), the comparative fit index (*CFI*), and the Tucker-Lewis index (*TLI*) were also examined. A *SRMR* value of less than .06 is generally considered as a good model fit and a *RMSEA* value of .08 or less indicates an acceptable model fit. For the *CFI* and *TLI* indices, values greater than .95 are indicative of an excellent model fit (Kline, 2005). The proportion of variance was analyzed using a squared multiple correlation value. The preliminary analyses including missing value analysis, and descriptive statistics were analyzed using SPSS Version 26.0 and the path model with Mplus Version 8.3.

Results

Preliminary Analyses

The data were approximately normally distributed, but three significant outliers were detected for the non-verbal sexual harassment variable based on the standardized values (± 3.00) (Tabachnick & Fidell, 2007). The outliers were removed, as they caused an unacceptable Cronbach alpha value ($\alpha = .49$). After removing the outliers, the alphas supported the internal consistency of the subscales of non-verbal sexual harassment ($\alpha = .69$) and verbal sexual harassment ($\alpha = .82$). A total of 0.8% of missing values (12 out of 1 593 values) were identified, as ten teachers did not fully complete the online form. The Missing Completely at Random (MCAR) test ($\chi^2 = 59.886$, $df = 46$, $p = .082$) indicated that the data with and without missing values were similar. Therefore, the missing values were considered to be missing completely at random (Little & Rubin, 2002).

Descriptive Statistics

Pearson's correlation coefficients, means, standard deviations, and the composite reliability values of the study variables were examined (Table 2). The results showed that the associations between variables ranged from low to moderate. The strongest positive correlation was found between verbal sexual harassment and physical violence, whereas the strongest negative association was detected between work-related stress and gender. In general, the non-verbal and verbal sexual harassment and physical violence variables had relatively low mean scores. About 4% of teachers had experienced physical violence and 5.2% non-verbal sexual harassment by their students a few times per year, whereas 0.6% had experienced verbal sexual harassment monthly. Nearly 28% of teachers described themselves as stressed quite or very much during the current or past school year.

Confirmatory Factor Analysis

A confirmatory factors analysis was implemented to test the factor structures of the non-verbal and verbal sexual harassment scale. The fit indices revealed an unacceptable factor structure for the scale ($\chi^2(13) = 21.943, p = .056, CFI = .91, TLI = .85, RMSEA = .062, 90\% CI [.00, .11], SRMR = .057$). Based on the modification indices, the residual variances of the individual items “*Asked about your gender or sexual orientation in an inappropriate context*” and “*Commented on your gender or your sexual orientation in an offensive way*” were allowed to correlate (y4 and y5). The modified model showed an excellent factor structure ($\chi^2(12) = 10.279, p = .592, CFI = 1.00, TLI = 1.03, RMSEA = .000, 90\% CI [.00, .07], SRMR = .051$). In addition, the composite reliability values for both the non-verbal and verbal harassment subscales were acceptable (Table 2). Based on this, the reliability of the present scale was adequate for the path model.

The Model of Sexual Violence, Physical Violence, and Work-related Stress

To examine the relationships between gender, level of teaching, region, tertiary education, teaching experience, non-verbal and verbal sexual harassment, physical violence, and work-related stress, a path model was implemented. The model including correlations between non-verbal sexual harassment, verbal sexual harassment, and physical violence (Figure 2) showed excellent fit to the data ($\chi^2(51) = 61.054, p = .158, CFI = .96, TLI = .93, RMSEA = .035, 90\% CI [.00, .06], SRMR = .051$).

A negative direct path was found between work experience and verbal sexual harassment, with longer work experience associated with lower verbal harassment scores. In addition to a negative direct path between gender and work-related stress, another negative path was detected between tertiary education and physical violence, indicating

that teachers with a sport science degree perceived higher physical violence than teachers with other tertiary education. Perceptions of physical violence were positively associated with non-verbal sexual harassment and with work-related stress. An indirect path from education to work-related stress mediated by physical violence was detected ($\beta = -.02$, $SE = .01$, $p < .05$). No further indirect paths were found.

A two-group test revealed a significant gender difference in the mean scores for work-related stress ($\chi^2(1) = 9.491$, $p < .01$) with female teachers ($2.66 \pm .74$) reporting higher work-related stress than male teachers ($2.58 \pm .80$). Squared multiple correlations revealed that the model explained 8% of the variability of work-related stress in the current sample.

Discussion

This study investigated the relationships between sexual and physical violence against PE teachers and their perceptions of work-related stress. The key findings were: 1) higher perceived physical violence was positively associated with higher non-verbal sexual harassment and work-related stress; 2) teachers' with a sport science degree perceived higher work-related stress mediated by physical violence than teachers with other tertiary education; 3) longer-serving PE teachers reported lower verbal harassment than teachers with less teaching experience; and 4) female PE teachers reported higher work-related stress than male teachers.

The present study is the first empirical study to investigate the associations of sexual and physical violence with work-related stress in a sample of PE teachers. In line with previous findings among teachers with a variety of subjects (Bounds & Jenkins, 2018; Espelage et al., 2013; Pas et al., 2012), higher perceived physical violence against

PE teachers was associated with higher perceived work-related stress. This is concerning, as it can negatively influence teachers' job satisfaction, burnout rate, personal lives, and effectiveness as a teacher (McMahon et al. 2014; Reddy et al. 2013). In doing so, students can also suffer from teacher-directed violence through poor learning environment, having distracted or disengaged teachers, or receiving little attention (Bounds & Jenkins, 2016). A study of Ozkiloglu and Kartal (2012) showed that many teachers who experience some kind of teacher-directed violence report being worse teachers to their students, and in turn teach them less, which may also cause higher stress in teachers.

On the other hand, neither non-verbal nor verbal sexual harassment correlated with perceived stress. One possible explanation may be that PE teachers do not even identify these behaviors as violence, as long as they do not get physical. Alternatively, PE teachers of the present study might tolerate certain suggestive behaviors and sounds in the PE environment to a higher degree than they would in any other school space because of characteristics specific to PE. For instance, PE classes are very different in nature than classroom teaching, as typically a plenty of opportunities for social interactions (Garn et al., 2011), the competitive and sometimes frustrating situations (Eldar & Ayvazoglu, 2009), and physical contact and touching (Öhman & Grunberg-Sandell, 2015) are included. In addition, it could be that an adult, physically competent, and often physically fit PE teacher might find it particularly difficult to confess that students' (who are typically minors) behavior has made them feel stressed, uneasy, offended or threatened. Thus, a threshold for reporting sexual harassment from students in a study could be very high. However, these findings support the postulation that teachers experiencing any sort of violence while working are in dire need of attention and support (Berlanda et al., 2019). If schools are going to help these teachers, more research is

needed to understand the violence they experience, as well as implementing programs and training to help decreasing the rates of school violence (Bounds & Jenkins, 2016).

Next, the results showed that higher perceived physical violence was positively associated with higher non-verbal sexual harassment. This finding is interesting, as this specific association has not previously been reported (Lahelma et al., 2000; Mooij, 2011). For some reason, similar correlations between verbal sexual harassment and physical violence did not emerge, because it may be that teachers less likely report verbal violence from their students (Bound & Jenkins, 2016). It may be that PE teachers are somewhat more tolerant for verbal aggressions, maybe because of the PE context specific characteristics as suggested earlier, especially when teaching secondary school-aged students (Bound & Jenkins, 2016) (as most PE teachers in the current study.) However, the present results also support previous findings that violence against teachers is a multidimensional phenomenon linked to the various behaviors on different levels from the physical to the emotional and psychological (De Cordova et al., 2019). These findings make it difficult to draw an overall picture of the complex factors underlying student violence against PE teachers. A common contributory cause is the ignorance of moral values and appropriate behavior in general due to lack of education in the family and children's inability to recognize any kind of authority, especially when it comes to showing respect for others (Lokmić et al., 2013). Positive teacher-student and teacher-parent relationships can foster cooperation between families and schools and protect against the negative effects of violence in schools (Aldrup et al., 2018). For example, schools could keep parents involved by informing them about violence prevention activities and school policies, raise parental awareness on how to recognize violent behavior, and work with parents to improve key parenting skills (World Health Organi-

zation, 2019). Social support from other school staff may help in dealing with challenging behavior and teacher-directed violence at school (Galand et al., 2007; Kauppi & Pörhölä, 2012). School psychologists are well-equipped to support teachers through direct consultation and professional counseling, and recommending other counseling services (Bounds & Jenkins, 2018). In the event of a violent situation, supportive collegial relationships between teachers and principals are useful in building a school culture where problems can be shared and solutions considered as a community (Acton & Glasgow, 2015). To summarize, extensive collaboration between teachers, principals, parents, and other school staff can facilitate positive working relationships in schools and inhibit violent student behavior against teachers.

PE teachers with sport science degrees experienced work-related stress more frequently than teachers with other type of degrees. This result supports previous studies of Mooij (2011) and Tiesman et al. (2013), who found that the experiences of teacher-directed violence may differ across pedagogies and among educational workers. It should be noted that most of the present PE teachers had a sport science degree, and hence the higher numbers of PE classes taught by these teachers may explain the differences between them and PE teachers with other educational backgrounds. This finding, however, draws attention to the content of current PE teacher education. It is possible that other teachers received more training during their university studies on occupational well-being and practical tools for coping with the stressors of work life than PE teachers. In Finland, the traditional PE teacher education is heavily focused on students' own motor skills. Another possible explanation for this finding may be that most PE teachers with a sport science degree work with middle-school students, whereas the role of teachers with other educational backgrounds is marginal at the middle-school level. Although elementary and middle schools showed no differences in the mean frequency of

student aggression, student age (Chen & Astor, 2009; Dzuka & Dalbert, 2007) may be relevant in some other way. Typically, elementary school teachers and health education teachers also teach other subjects to the same groups. It may be that group stability and the variation in teaching contexts may facilitate better teacher-student relationships. PE teachers usually teach the same students once a week, and hence the teacher does not have much time per student. Additionally, compared to traditional classroom teaching, students have more space to express themselves in both positive and negative ways. This could be a significant factor in the incidence of violence against teachers. However, based on the present results, firm conclusions cannot be drawn on the relationships between type of teacher education, physical violence, and work-related stress. More information on teachers' pedagogies, class management, coping skills, and student demographics is needed to clarify these findings.

In line with Lokmić et al. (2013), who studied violence against teachers in general, the longer-serving PE teachers in the present sample reported less verbal sexual harassment than the teachers with less teaching experience. De Cordova et al. (2019) suggest that teachers with longer experience may be better at maintaining discipline and building good relationships with their students (teachers can influence students' reactions by their approach and way of teaching), and also less sensitive to provocation by students. For instance, well-prepared and interestingly presented content (Lokmić et al., 2013), good communication with students, including setting boundaries for acceptable behavior (Aldrup et al., 2018), and the teacher creating a pleasant working atmosphere by example (Lokmić et al., 2013) may help prevent student misbehavior. Another explanation could be that social relationships between students and teachers are rather informal in Finnish schools, meaning that while teachers are easily approachable by students, the threshold for undesirable student behavior may be also lower (Kauppi & Pörhölä,

2012). A major problem in estimating the frequency of verbal sexual harassment against teachers is that most teachers who experience this do not report it (Kurtz et al., 2018). As in cases of physical violence, school authorities could encourage PE teachers to report verbal sexual harassment, although it may feel as negligible (Maeng et al., 2020). In less serious cases, schools may impose disciplinary measures appropriate to the misbehavior, consider conflict resolution, or take other actions responsive to the student's needs (National Threat Assessment Center, 2018). As discussed above, the reasons for the higher frequency of the verbal sexual harassment of teachers with less teaching experience are multidimensional. Since the problem may manifest itself differently in various schools, solutions should also vary. In the first place, cooperation between families and schools (Aldrup et al., 2018), clear reporting procedures (Maeng et al., 2020), and action plans to prevent verbal sexual harassment (Cohen, 2013) could serve as effective violence prevention strategies in schools.

As expected, and consistent with previous international studies irrespective of significant differences in education systems, female PE teachers reported a higher level of work-related stress than male teachers (Al-Mohannadi & Capel, 2007; Antoniou et al., 2006; Ravichandran & Rajendran, 2007). In contrast, a previous survey conducted among teachers in Finland found no gender differences in perceived work-related stress (Opetusalan työolobarometri, 2017). Interpreting these contradictory results is not a straightforward matter, owing to multiple variables that have not all been considered in all studies. For instance, Antoniou et al. (2006) found that Greek female teachers' higher levels of stress was generally associated with negative conditions in the classroom and student misbehavior, whereas Bounds and Jenkins (2018) found that school location (urban or suburban) also had a significant impact on teachers' perceived work-related stress. Irrespective of the causes of work-related stress among female teachers,

the stress experienced by a particular teacher is unique to her and will depend on a complex interaction between her personality, values and skills and the prevailing teaching conditions (Montgomery & Rupp, 2005). Based on the findings of Montgomery and Rupp (2005), female teachers, in particular, could benefit from a review and, where necessary, reorganization of their working conditions (e.g., class sizes), work routine, resources, and workload. Schools could also provide teachers with additional training and education in stress management and the reconciliation of work and family life, which may often be more challenging for female teachers. It should be considered that the proportion of female teachers in the current sample was larger than male teachers. In addition, as female PE teachers typically teach girls and males instruct boys' PE groups, it may bring up some variation in perceived work-related stress. However, based on the current data, it is impossible to evaluate impacts of the disproportion on perceived work-related stress levels.

It can be concluded from these results that early signs of student aggression, such as threats, towards PE teachers should be taken seriously before the aggression becomes physical. For instance, school authorities could encourage teachers to report threats as a violence prevention strategy in their schools (Maeng et al., 2020). Previous studies have also revealed that schools with a more authoritative school climate have lower rates of aggression against teachers than schools with a permissive climate (Berg & Cornell, 2016; Huang et al., 2017). This means that while the school climate is strict, it is also positive and has fair disciplinary practices and supportive teacher-student relationships (Cornell et al., 2016). Appropriate strategies for creating a positive climate and atmosphere in school PE classes should be aimed at promoting 1) *physical and emotional safety* (clearly communicated rules and norms about physical violence and verbal abuse, such as that students are required to use language in a precise and appropriate manner),

2) *supportive teaching practices* (all students are given opportunities to succeed; PE teachers encourage students to try out new techniques, show them how to learn from mistakes, and talk to them about how certain actions will affect others), 3) *respect for diversity* (all students are listened to and their opinions count; groups and teams are regularly changed and do not always consist of the same students), and 4) *a health-promoting environment* (teachers promote a sense of belonging and commitment by taking students' individual needs into account and clearly inform students and parents on how a student can improve her or his PE performance) (Cohen, 2013). Finally, to prevent work-related stress in PE teachers, school communities could provide appropriate support for teachers who have been victims of violence (World Health Organization, 2019). As the strategies listed above indicate, there are many ways to improve the school climate that apply to PE classes. However, as emphasized by Cohen (2013), improving the school climate should be a continuous process comprising climate assessments, the interpretation of findings, and the development of action plans. Thus, improving the school climate concerns the whole school community.

Strengths and Limitations

The present study is highly topical, as the recent "Me Too" movement brought the idea of sexual harassment and assault into the public debate. Studies on sexual harassment against PE teachers had hitherto been lacking, whereas inter-student violence among students has been widely researched. A key strength of the present study was the examination of three types of violence, namely verbal and non-verbal sexual harassment and physical violence, which have not been concurrently examined among PE teachers.

However, the present study has its limitations. First, the data were gathered using an internet-based format which did not permit controlling for participant demographics.

For instance, it was impossible to know whether the sample was representative of PE teachers who have most frequently been subjected to sexual or physical violence by their students. Furthermore, the study was cross-sectional, and therefore conclusions on the causal relationships between sexual and physical violence and work-related stress cannot be drawn. Finally, the study would have benefitted from a larger sample of PE teachers representing different school levels and regions, as most participants were currently teaching at the middle-school level and located in the larger cities in Finland. With these caveats, the present study extends previous findings on violence against PE teachers and contributes to filling the research gaps in the literature. Future studies could investigate topics that remain unclear, such as perceived sexual and physical violence in different types of schools in both urban and rural contexts and across a broader student age range. More in-depth studies on the antecedents and consequences of sexual violence in schools, especially sexual assaults against teachers, are needed.

Conclusion

The key findings of this study were, first, that violence against PE teachers is a multidimensional phenomenon, as perceived non-verbal sexual harassment and physical violence were closely related. Moreover, the results showed that the consequences of student violence towards teachers are serious. PE teachers who had been subjected to physical violence by their students were more likely to suffer from higher work-related stress. Longer-serving PE teachers may be better at building good relationships with their students and less sensitive to student provocation, as years of teaching experience was a significant predictor of lower perceived verbal sexual harassment. Alternatively, these teachers may have a lower awareness of sexual harassment, resulting in a lower reporting rate.

To prevent work-related stress in PE teachers, schools could focus on the creation of a positive climate through collaboration with students and parents in which all parties are listened to and a sense of belonging and commitment fostered. To combat violent situations, schools could introduce up-to-date assessment procedures and action plans that encourage a low threshold reporting by PE teachers of sexual harassment or physical violence-related incidents. School authorities could also encourage PE teachers to report student threats as a violence prevention strategy and provide appropriate support for teachers who have been victims of violence. To raise awareness of sexual violence against teachers, the identification of types of sexual harassment could be considered more effectively in PE teacher education programs. Supportive collegial relationships between teachers and principals and relationships with parents are also useful in developing a school culture where problems such as violence can be shared and solutions considered as a community.

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