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Effectiveness of a workplace intervention to reduce workplace bullying and violence at work: study protocol for a two-wave quasi-experimental intervention study

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ABSTRACT

Introduction Bullying and violence at work are relatively common in Finnish public sector workplaces. Previous research has demonstrated their association with increased risk of poor health and well-being, but only few intervention studies exist. The aim of this protocol paper is to describe the development and assessment of the effectiveness of a workplace intervention aimed at reducing these harmful phenomena.

Methods and analysis This protocol describes a two-wave quasi-experimental intervention. Each of the three participating Finnish public sector organisations (cities) will select four work units (a total of 450–500 employees) to participate in an intervention including 2–3 workshops for the work unit, 2–3 consultative meetings with the supervisor of the work unit, a follow-up meeting for the entire work unit (a maximum of 6-month time lag) and online meetings with the supervisor to monitor achievements and discuss about difficult cases, if any. Three age-matched, sex-matched and occupation-matched controls for each participants of the intervention group will be randomly selected, a total 1350–1500 individuals in the control group. For intervention and control groups, premeasurement is based on responses to a survey that was conducted in 2020. Postintervention measurement will be based on survey responses in 2022. Data will be analysed using latent change score modelling or difference-in-difference analysis.

Ethics and dissemination Ethics approvals are from the Ethics committees of the Helsinki and Uusimaa hospital district and the Finnish institute of Occupational Health. Results will be made available to participating organisations and their employees, the funder and other researchers via open access article in a peer-reviewed journal and subsequent reporting of the results via social media channels and press release to the public.

Strengths and limitations of this study

- Our longitudinal quasi-experimental study design will allow investigating changes over time within the same employees in intervention and control groups providing evidence for causality.
- The chosen statistical method will also allow us to study the intervention mechanism, that is, the variables through which the invention succeeds or fails on delivering the desired outcomes.
- The primary limitations are lack of randomisation, rather long period (ca. 18 months) during which the interventions are implemented in different organisations and work units, and tailoring to meet the needs of the participating work units which limits the generalisability of the findings.

INTRODUCTION

In 2020, 45% of women and 33% of men working in the Finnish public sector (FPS) had experienced a violent or threatening situation at work during the previous 12 months. Of the women, 32% had experienced mental abuse (verbal threats), 27% were exposed to throwing of things, 23% to hitting or kicking and 1% to violence or threatening situation including a weapon (firearm, edged weapon or striking weapon). In men, the corresponding figures were 27% for mental abuse, 18% for throwing of things, 10% for hitting or kicking and 2% for weapon. Violence and threat of violence is cumulated to certain occupations, such as those in education and healthcare sector, and is more common among young employees.[1] Review articles have reported that violence is often underreported in healthcare sector, and viewed as a necessary part of the job.[2 3] However, work-related exposure to violence/threat of violence is associated with mental disorders and mental distress[4 5] and sleep problems among employees.[6] High organisational justice may to some extent buffer against the adverse health effects of violence at work.[6]

As violence, experiencing workplace bullying is slightly more common among women than men. In 2020, for example, 10% of women and 9% of men working in the FPS reported workplace bullying. Healthcare and nursing professionals reported bullying above average.[1] Observational studies suggest that workplace bullying is associated with various adverse outcomes, including lower job satisfaction, anxiety and depression, sleep problems, sickness absence, job turnover intentions[7–12] and even suicidality.[13] However, psychosocial workplace resources, such as workplace social support, organisational justice and fair leadership practices, may alleviate the negative effects of workplace bullying.[9 10 14]

Both violence at work and workplace bullying tend to cluster with other adverse psychosocial factors at work. These include role conflicts, problems in the organisation of work and work tasks, high job demands, excess workload, insecurity, poor team climate, dissatisfaction with leadership and towards organisation.[15–18]

Employers in Finland are mandated to take steps to eliminate workplace bullying and ensure safety at workplaces, but there is a lack of scientific evidence on interventions and actions that would be effective in reducing these adverse phenomena.[7 19–21] Recent studies have found that HR professionals perceive training and policies, as well as good leadership practices, as generally accepted ways of preventing bullying.[22 23] The aim of this paper is to describe our study protocol on a study of the effectiveness of a workplace intervention focusing on reducing workplace bullying and violence/threat of violence at work by structured consultation, development of policies and developing psychosocial work resources.

METHODS AND ANALYSIS

Study setting

This intervention study is nested in the FPS cohort study that is conducted every 2 years in 11 Finnish municipalities and in five hospital and healthcare organisations.[4 24] We will use a subset of responses from 2020 and 2022 surveys of the employees of three cities that agreed to participate in this intervention (n=41 417 in 2020). The intervention group consists of the employees in the 12 work units that will attend the intervention (planned number of participants in the intervention group ca. 450–500). Control group includes three controls for each member of the intervention group, matched based on sex, age and occupation (n=1350–1500) preferably from the same cities (figure 1).

Content of the intervention

The intervention is based on the premise that zero-tolerance to these adverse events must be a common goal throughout the organisation, from employees to supervisors and top managers. The specific learning objectives within the intervention are preventive in nature rather than directly dealing with acute bullying cases or other acute crises. A previous intervention study found that supervisors can learn to intervene to workplace bullying, and that there are ways to tackle the obstacles of not intervening.[25] There is also some evidence that interventions focused on organisational practices and procedures might be effective.[20 21] The content of the current intervention is therefore based on the experiences of these previous interventions. The present intervention focuses on developing organisational practices, procedures and instructions (related to workplace bullying and violent encounters with customers, patients or pupils) that are hypothesised to prevent violence and bullying or alleviate their negative effects. The intervention also aims to develop supervisory behaviours and practices, as well as employees' organisational citizenship behaviours and general knowledge about the phenomena (table 1).

Table 1 provides an outline of the intervention, but the specific content of the intervention will be tailored to meet the specific needs of each work unit. Tailoring is based on 'State of the work unit' index which consists of five different dimensions evaluating the current level of procedures and instructions related to workplace bullying and violent encounters, and supervisors and employees' attitudes and behaviours at work: (1) organisation-level: practices and procedures and instructions for cases of

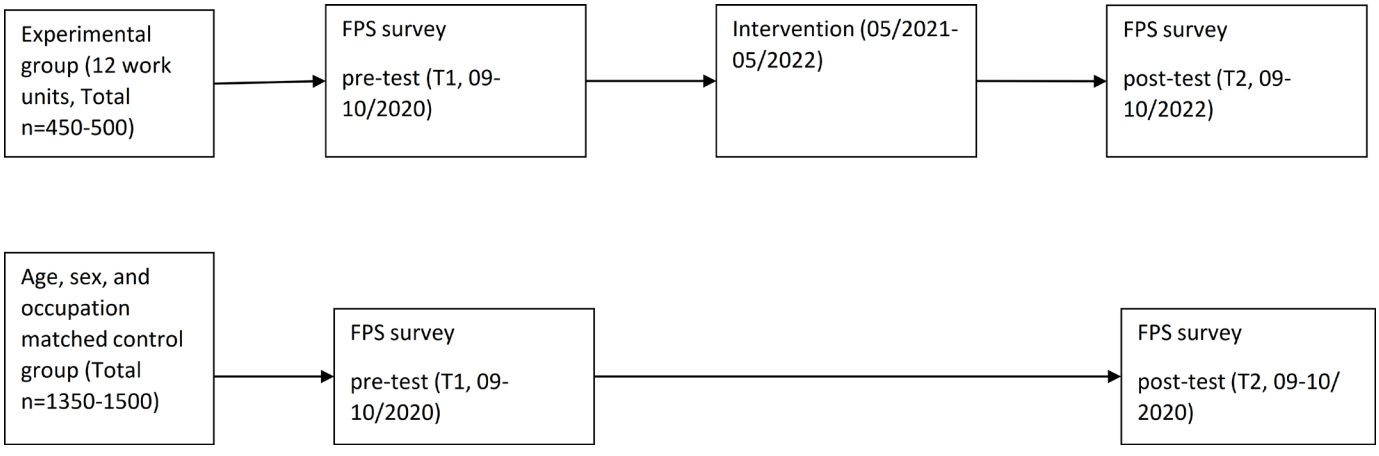

Figure 1 Study design. FPS, Finnish public sector

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Table 1 Contents of the intervention

Level	Goal	Contents
Organisation	Increase knowledge on procedures and instructions of workplace bullying and violence at work	Reflection on the current procedures and instructions; identification of the developmental needs
Supervisor	Increase awareness of workplace bullying and violence at work; clarify the role of supervisors and managers; guidance how to deal with workplace bullying and violence at work; improvement of team climate	Detailed information on workplace bullying and violence at work; legislation: employer's responsibility and rights; guidelines and exercises how to deal with workplace bullying and violence at work
Work unit	Consider aspects of work that pose a risk of workplace bullying and violence at work; increase knowledge on adverse and proper working conditions; develop strategies to improve team climate and communication	Identify difficult work situations that pose a risk of workplace bullying and violence at work; share and discuss these situations; invent and specify ways in which to deal with obstacles and improve team climate

workplace bullying and violent encounter at work; (2) work unit -level: open and safe work psychosocial environment, safety culture and ways to bring up sensitive issues at work; (3) leadership and management: supervisor training, attitudes and shared way of doing things; (4) individual-level: good organisational citizenship and (5) individual-level: prevention and recognition of risk of violence.

A team of ca. 10 employees including their supervisor will fill the index with a FIOH senior expert. Some values are derived from employee well-being survey (FPS study), and these will be entered by the FIOH expert beforehand. The work unit will receive a score for each dimension, and these will be used to focus the content of the intervention on areas with the lowest (poorest) scores.

A total of 12 units are selected to participate the intervention workshops. Participation is part of the work duties, and thus mandatory. However, due to work duties, it is often not possible for all employees participate simultaneously. The intervention includes 2–3 workshops for the work unit, and 2–3 separate consultative meetings with the supervisor of the work unit: 1 hour premeeting (to fill the index), two 2–2.5 hour workshops, a follow-up meeting (a maximum of 6-month time lag), and online meetings with the supervisor to monitor achievements and discuss difficult cases, if any.

Measures

Outcome measures are obtained from survey questionnaires assessing workplace bullying and violent situations at work.

Violence at work is measured with the following questions: 'Have any of the following violent or threatening confrontations involving clients happened to you over the past 12 months?' (yes/no): (1) throwing or breaking things; (2) mental abuse (eg, verbal threats); (3) physical violence (eg, hitting and kicking); (4) threatening with a weapon (firearm, edged weapon and striking weapon). If the respondent replies 'yes', we ask how often confrontations had happened (daily, weekly, monthly and less frequently).[6]

Workplace bullying is measured with the following question: 'Psychological violence or bullying at work refers to the *constant, repeated* isolation of a member of the working community, belittling one's work effort, threats, talking behind one's back or other forms of pressure'. Have you been the target of such bullying in the past 12 months? (yes/no). If the responded answers 'yes', we further ask whether the respondent had reported this to a representative of the employer (yes/no).[26]

The beneficial effects of the intervention, if any, are expected to be mediated via changes in psychosocial factors, supervisor and employee knowledge, behaviours and organisational practices. Hypothesised mediating mechanisms include supervisor support, justice, empowering leadership, team climate, workplace social capital, and psychosocial safety.

Supervisor support is measured with 4-items describing supervisors support, encouragement, rewarding and trust in employees. The items are summed and averaged and rated on a 5-point Likert-scale, ranging from 1 (I totally disagree) to 5 (I totally agree).

Supervisor justice is measured with a 6-item Relational Justice instrument describing supervisor's fairness, kindness, interaction, information sharing, respect for the employees and trustworthiness.[27] The items are summed and averaged and rated on a 5-point Likert-scale, ranging from 1 (I totally disagree) to 5 (I totally agree).

Engaging leadership is measured with a 9-item instrument.[28] It includes three subscales: inspiring, strengthening and connecting. Inspiring refers to behaviour that enthuse team members; strengthening refers to a set of behaviours that help team to become self-reliant and connecting refers to behaviours that encourages team members to cooperate.

Team climate is measured with a 14-item Team Climate Inventory (TCI).[29 30] TCI groups team climate into four subscales: (1) participative safety: team participation, such as interaction frequency and information sharing (four items); (2) support for innovation: articulated support and enacted support (three items); (3) team vision: team

members' views of the attainability and support to team objectives (four items) and (4) task orientation: team's emphasis on monitoring quality and critical reflection (three items). The items are rated on a 5-point Likert-scale, ranging from 1 (I totally disagree) to 5 (I totally agree). Higher scores indicate a better team climate. We will test both subscales and total summed TCI score as possible mediators.

Workplace social capital is measured with validated measure of 8 items describing the combination of team climate (participative safety, support for innovation and task orientation) and supervisory behaviour (kindness, consideration fairness).[31]

Work unit psychosocial safety is measured with 8 items of respect, support, trust, helpfulness and lack of gossip, envy, discrimination, and bullying within the work unit summed and averaged. The items were rated on a 5-point Likert-scale, ranging from 1 (I totally disagree) to 5 (I totally agree).

Statistical analyses

Our primary aim is to conduct the statistical analyses using latent change score modelling method (LCSM).[32] As the focus of this study is on changes in workplace bullying and violent encounters at work (2020–2022 /T1–T2) that the intervention may cause mediated by changes in psychosocial work characteristics (2020–2022 /T1–T2), LCSM is chosen. It enables to focus on changes in variables and mediational processes between these changes. LCSM can test the hypothesised dynamic processes and investigate if the intervention causes a change in psychosocial work characteristics, and if the changes in psychosocial work characteristics further causes a change in adverse events of bullying and violence at work. Thus, LSCM investigates if the intervention will change the level of mediating variables related to supervisor (supervisor support, supervisor justice and empowering leadership), and/or work unit (team climate and work unit social capital), and if the changes in (some of) these variables will further lead to a change (ie, decrease) in workplace bullying and violent encounters at work. Consequently, via this modelling method, it is possible to rule out a Hawthorne effect and thus conclude that the intervention causes a change in psychosocial work characteristics which further cause a change in bullying and violence at work.

First, the latent change factors for psychosocial work characteristics, workplace bullying and violent encounters at work are first created: the latent change factors are defined so that they are measured by corresponding T2 variables with factor loadings fixed to 1; a path between corresponding T1 and T2 variables is fixed to one and the residuals of T2 variables are construct to zero; and finally, a freely estimated path from T1 variables to the latent change factors. Consequently, LCSM represents change as a distinct latent construct that captures the true change in the variables from T1 to T2.

Second, the effects of the workplace intervention are investigated by estimating regression paths from the intervention to latent change factors of psychosocial work characteristics and further to latent change factors of workplace bullying and violent encounters at work. A significant indirect effect from the intervention to workplace bullying and/or violent encounters at work through psychosocial work characteristics is required to demonstrate mediation. LCSM is conducted within a structural equation modelling framework and using the Mplus statistical programme (V.8).[33]

However, LCSM is intended to situations where the observed variables are measured with a continuous scale.[34] Our primary outcome variables are dichotomous (having encountered workplace bullying and/or violence or not). Hence, if LCSM does not converge, we will use a more traditional epidemiological modelling, that is, difference-in-difference (DID) analysis.[35 36] DID analysis is commonly used in epidemiological and healthcare research. DID models generate a causal estimate of a change in outcome due to an intervention after subtracting the expected background change observed in the control group. This approach controls for non-measurable individual-level characteristics and common trends affecting both the intervention and control groups. We will apply repeated measures binomial regression analyses using the generalised estimating equations (GEE) method with an exchangeable correlation structure. The repeated-measures GEE method considers intraindividual correlation between the measurements, and results in risk ratio (RR) estimates of the risk after versus before the intervention, with 95% CI. To determine whether the change in time is different between the intervention and control group, we enter the interaction term 'group ×year' into the model. Year is specified as a class variable in the analysis.

Mediation is to be analysed according to VanderWeele, that is, by separating intervention effects into controlled direct effect, natural direct effect, natural indirect effect and total effect.[37–39] Possible DID and mediation analyses are performed using SAS statistical software, V.9.4.

With this sample of 1800–2000 participants, we have 80% power to observe 4% change in workplace bullying (from 10% to 6%), and a 7–8 percentage point change in reports of workplace violence or threats of violence. Because this is a nested study, we will be able to increase the size of the control group (add more than three matched controls), should the statistical power seem inadequate due to drop-out in the intervention group.

ETHICS AND DISSEMINATION

In the FPS study, filling up the questionnaire is totally voluntary. The voluntariness is clearly stated in the cover letter of the questionnaire. Filling up the questionnaire is considered as consent to participate. The FPS study has received ethical approval from the Ethics Committee of the Helsinki and Uusimaa hospital district (HUS/1210/2016). For the current intervention study which utilises FPS data, ethical approval is from the

Ethical committee of the Finnish institute of Occupational Health (10/2020; 1/2021). The work units participating to the intervention are defined by the employer. Participation to the intervention takes place during work hours and is defined as part of the work tasks. Participation, defined as being present, is thus mandatory. However, active participation, as defined by taking part in the discussions at workshops, is totally voluntary.

Results will be made available to participating organisations and their employees, the funder and other researchers via open access article in a peer-reviewed journal and subsequent reporting of the results via social media channels and press release to the public. The data sets to be generated and analysed during the upcoming study are not publicly available due sensitive and health-related nature of the data but anonymised data are available from the corresponding author on reasonable request. The statistical code will be published along with the results.

Patient and public involvement

Participants are not involved in setting the research question or the outcome measures, nor are they involved in developing plans for recruitment, design or implementation of the study. No participants are asked for advice on interpretation or writing up of results. The results are published as open access scientific article(s), and will be disseminated to study participants, members of the public, and professionals via website of the Finnish Institute of Occupational Health, and social media.

Strengths and limitations

There is an urgent need to identify effective and practical ways to reduce workplace bullying and customer violence in public sector workplaces. This study seeks to evaluate a structured intervention aimed at reducing these harmful phenomena.

A limitation of this study is that it is impossible to randomly assign participants to the intervention or to the control group. Thus, this is a quasi-experiment. Furthermore, the 2-year gap between follow-up measurements might be too long to detect all the effects of the intervention as some of them might be shorter lived. The COVID-19 pandemic has impacted both the intervention and the control unit. With the rather long time before T2 measurement, we have enough time to implement the intervention workshops at a postpandemic time. The participants in the control group are expected to be exposed to 'care as usual', that is, to the antibullying and antiviolence procedures that the HR of the target organisations offer as a standard procedure. The intervention is seen as supplementing and as a development to standard procedures and tools.

Finally, the content of the intervention is tailored to meet the needs of the participating work units which limits the generalisability of the findings.

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Contributors JE is the principal investigator and drafted the paper. JE and PS planned the study design. PS, JE and VA will be responsible for the data and statistical analyses. All authors (JE, PS, NO, SK, HH, VA and MK) provided critical interpretation of the data and revised the manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting or dissemination plans of this research.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement The data sets to be generated and analysed during the upcoming study are not publicly available due sensitive and health-related nature of the data but anonymised data are available from the corresponding author on reasonable request. The statistical code will be published along with the results.

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