

Contextualizing Violence Prevention – How Contextual Aspects Influence the Implementation of a Violence Prevention Initiative in Prisons and Psychiatry



ORIGINAL ARTICLE

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ABSTRACT

The aim of this study was to investigate which contextual aspects and mechanisms are decisive in the implementation of an integrated, tailored intervention to prevent violence and threats of violence from patients or inmates towards employees in psychiatric units and in prisons and detention centers. Based on a standardized implementation degree assessment of fidelity, reach and dose delivered, we selected two workplace cases from each sector, one with a high and one with a low implementation degree. Using a realist evaluation framework, we conducted a thematic analysis of the four selected workplace cases to identify prevalent contextual aspects and mechanisms underlying the implementation degree. We found that prioritization, synergy with parallel change processes, and intervention fit, were decisive mechanisms for the successful implementation of the intervention. We also found that lack of resources (staff instability, insufficient time, poor mental resources) and resource-demanding parallel change processes, were contextual aspects that “blocked” all mechanisms. That is, when resources were not available, none of the mechanisms for implementing the intervention was activated. Our findings point to the importance of investigating the role of contextual aspects when assessing the effectiveness of organizational interventions.

KEYWORDS:

Violence prevention;
organizational intervention;
realistic evaluation; context
evaluation; implementation;
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INTRODUCTION

Despite many existing initiatives to improve preventive efforts, workplace violence perpetrated by patients, clients, or inmates against employees, remains a widespread and serious occupational risk factor in many occupational sectors, causing severe physical, mental, and societal problems (Biering et al., 2018; Eurofound, 2017; Friis, 2018; Nyberg et al., 2020; Rudkjoebing et al., 2020; Xu et al., 2018; Xu et al., 2019). Three recent reviews indicate that training staff in violence prevention could be a viable way to tackle violence risk, although more rigorous studies are needed to establish the effectiveness of such prevention approach (Baby et al., 2018; Morphet et al., 2018; Tölli et al., 2017). These reviews highlight a substantial lack of controlled studies and of studies accounting for the process and context of the intervention (Baby et al., 2018; Morphet et al., 2018; Tölli et al., 2017). There are few studies that have employed an Randomized Controlled Trial to test new approaches to violence prevention. The few existing RCT studies have shown effects of group and organizational directed interventions, suggesting that this might be a course of action to pursue (Arnetz et al., 2017; Bowers et al., 2015). In these studies, the authors observed a mean positive effect of the interventions, even though these effects, as well as degree of intervention implementation, varied within the participating work units (Arnetz & Arnetz, 2000; Arnetz et al., 2017; Bowers et al., 2015). This calls for a better understanding of the mechanisms and the context within which these interventions prove to be effective.

CONTEXT, MECHANISM AND IMPLEMENTATION – KEY CONCEPTS FOR UNDERSTANDING AND IMPROVING ORGANIZATIONAL HEALTH AND SAFETY INTERVENTIONS

Occupational health interventions are purposeful measures aimed at improving the working environment as well as the safety, health and well-being of the workers (Dyreborg et al., 2015; Robson, Shannon, Goldenhar, & Hale, 2001). Interventions can be initiated by the workplace itself or by the researcher, and they can be simple, based on one single strategy only, or complex, relying on a number of simultaneous and interacting change strategies (Fraser & Galinsky, 2010). An intervention, however, does not create change *per se*; for it to be effective, it needs to be integrated into everyday practice. It is well established that the context of an intervention influences how well intervention plans translate into actual implementation (Damschroder et al., 2009; Nielsen & Randall, 2013; Saunders, Evans, & Joshi, 2005). With regard to violence prevention specifically, this understanding of intervention is in line with the theoretical understanding of work-related

violence as a phenomenon that is influenced by societal and workplace factors, such as type of social welfare regime, type of employment contract and adequacy of staffing (Viitasara & Menckel, 2002). These context factors are assumed to alter both the work environment and the individual actions within, constituting a complex interplay of contextual factors that affect the arena of preventive intervention. To disentangle this complexity and advance knowledge on interventions in the domain of violence prevention, there is a need of well-defined and tangible concepts that can be used to facilitate empirical investigations. With such a systematic approach, progress can be made towards explaining the considerable variations in implementation and outcome that is often observed both between (Bowers et al., 2015; Geoffrion et al., 2020; Price, Burberry, Leonard, & Doyle, 2016) and within studies (Arnetz & Arnetz, 2000).

So far, a number of frameworks have been developed to explain process evaluation in the domain of organizational interventions, based on findings from numerous process evaluation studies (Damschroder et al., 2009; Fridrich, Jenny, & Bauer, 2015; Nielsen & Randall, 2013). Each of these frameworks considers key concepts such as context, implementation and outcomes. Regarding context, the existing frameworks concur that this concept is concerned with the circumstances that surround the intervention, which can either support or hinder its implementation, as well as about the distinction between omnibus and discrete context (or inner and outer setting) (Damschroder et al., 2009; Fridrich et al., 2015; Nielsen & Randall, 2013). With regard to implementation, there is equally large consensus across the frameworks that this concept refers to whether the intervention is enacted as intended. There is, however, no consensus between these frameworks as to what links differences in context with differences in implementation. Nielsen and Randall (2013) and Damschroder and colleagues (2009) highlight characteristics of the intervention, characteristics of the individuals and the mental models of the participants as factors influencing the implementation and that interact with the context. However, these authors do not explain how these characteristics interact with the context, thus leading to different implementation outcomes. In this regard, the realist evaluation approach provides the concept of *mechanism*, which may prove as a useful analytical tool for investigating the link between context and implementation. In a realist understanding, certain contextual factors are thought to activate certain mechanisms that cause an outcome—which is implementation in the present context. A mechanism is defined as “an element of reasoning and reactions of (an) individual or collective agent(s) in regard of the resources available in a given context to bring about changes through the implementation of an intervention” (Lacouture, Breton, Guichard, & Ridde, 2015, p. 8). As

such, mechanism can help examining how context and implementation are linked to each other in the domain of organizational interventions.

With this article, we will contribute shedding light on the question of *why* and *under which circumstances* organizational violence preventive interventions are effective. We pursue this goal by applying a realist evaluation methodology, which allows us to identify the underlying mechanisms that lead to a high or low implementation degree of an organizational intervention aimed to prevent violence in psychiatric units and in prisons and detention centers.

MATERIAL AND METHODS

THE INTEGRATED VIOLENCE PREVENTION INTERVENTION

The Integrated Violence Prevention intervention was modeled upon the theoretical framework for accident prevention developed by David DeJoy (2005). The latter posits that accident prevention is created through an integrated process where the management drives a culture of change that “trickles down” to the employees, and that the employees drive a behavioral change that will “bubble up” and modify the prevention activities and culture (DeJoy, 2005). In line with this perspective, a Danish prospective study in the Prison and Probation Services and in psychiatric units found that, when employees experienced prioritization of violence prevention and support from their top manager, line manager, and colleagues simultaneously, their risk of being exposed to violence and threats was reduced significantly (Gadegaard et al., 2015). Accordingly, the Integrated Violence Prevention Intervention was designed to prompt employees, line managers, and top managers to enhance their systematic collaboration on improving violence preventive practices (Jaspers et al., 2019). For this purpose, we designed our intervention to encompass a number of activities, at each of the workplaces involved, through a period of six months. The activities that supported the bottom-up change process were: a) mapping what the work units were already doing to prevent violence and threats by means of a short questionnaire and interviews; b) presenting the results of this preliminary mapping at a seminar targeted to the entire staff and the managers. The purpose of this presentation was also to start a discussion about what the work unit wished to achieve in terms of improving their violence preventive practices. Ideas for improvement were developed in smaller groups and thereafter discussed with all participants. Finally, all ideas were collected in an “idea-bank”, a list of suggestions that could be worked with during the intervention period.

The activities that were set up to enhance the “trickle-down” culture of change, consisted of a

preparation meeting with the top-management and the line managers, wherein resources and support for the intervention activities were allocated, a leadership seminar with the top-manager and line manager where results from the mapping was presented, three coaching sessions with the line manager focusing on their violence preventive actions and five steering group meetings. At each of the participating work units, the steering group was made up of the line manager, the work environment representative, and one to five employees. The steering group was asked to engage in the process of initiating action plans for violence prevention and implementing these plans over the five months following the seminar.

The researchers facilitated the seminar and the first two steering group meetings, while the work units had to conduct the last three steering group meetings by themselves. The researchers’ role was not to act as violence prevention experts but rather as process facilitators by stimulating the work units to use their own expertise in preventing risks for violence specific to their work unit.

The intervention was conducted in 16 work units; 8 in psychiatry and 8 in the prison and probation services. This article focusses on how context and implementation are linked and the results of the effect-evaluation will be published in another article. For further detail on the background and content of the intervention, as well as the set-up of the effect evaluation, see Jaspers and colleagues (2019).

SETTING

The study was conducted in Denmark, where both psychiatric hospitals and prisons are public. The relative prioritization of containment and resocialization/recovery in prisons, detention centers, and psychiatric hospitals varies worldwide and are therefore important to be aware of when describing studies in this area. The prison and probation services in Denmark pursue two main goals: containment and resocialization (The Danish Prison and Probation Service, 2012). These two goals are supposed to be balanced, and all prisons and detention centers have varying degrees of educational and labor market preparing activities that most prisoners are allowed to attend on weekdays. In cases where the inmate poses a danger to the staff or other inmates, the prison officers are allowed to use physical force in self-defense and sanctions, consisting of either fines or varying degrees of isolation. The work of the prison officers is organized as shiftwork for day, evening and night, and in the units included in this study they were typically two to three prison officers on a shift together. A large part of the basic work tasks (e.g., visitations, enforcement of the smoking ban, or moving the inmate to another cell) inherently bears the potential for conflicts. Threats and violence are typically preceded by conflicts that arise in

these situations (Bowers et al., 2015). Conflicts can also arise in situations that the officers describe as “out of the blue”, as, for example, when gang members use violence against prison officers to position themselves within a gang hierarchy.

The psychiatric hospitals included in the study are part of the tax-financed universal Danish health care system that offers free health care to all citizens. The psychiatric units included wards with patients typically hospitalized for a maximum of two weeks, but often known previously to the personnel from earlier admissions. The work is organized in shifts and, typically, four to six nurses, care assistants or nursing students are on a shift together in the daytime. If patients are posing a danger to the staff, the other patients, or themselves, and/or are psychotic, the personnel are allowed to use coercion in the form of medication or belt fixation, but always with the principle of applying the least invasive measure possible. This can be a special issue with patients who are admitted against their will, or who are severely psychotic, as they can have diverging views on their psychological states and needs for treatment. Other daily occurring situations that may have potential for conflict, and thereby may potentially lead to threats or violence, are enforcement of rules about cigarette possession/acquisition, administering medication, conveying bad messages from social services or relatives, and setting limits in general (Dickens et al., 2013; Duxbury, 2002; Papadopoulos et al., 2012).

STUDY DESIGN: SET-UP OF THE CONTEXT EVALUATION

While the aim of the main study was to test the effects of the Integrated Violence Prevention Intervention in this study our aim was to take a closer look at the relationship between context and implementation of the intervention. This was done by identifying which mechanisms linked our pre-defined contextual aspects with different degrees of implementation. In the following sections, we will unfold how we systematically approached this task. We used pre-defined assumptions on important contextual aspects for implementation to guide our data-collection process, and we used a standardized tailor-made tool to assess the implementation of the intervention. Using realist evaluation, we looked for patterns in contextual aspects and implementation degree in four selected cases, to identify central mechanisms underlying the implementation of the Violence Prevention Intervention. Data was collected between September 2017 and December 2019.

SELECTION OF CASES

Of the 16 work units recruited for the main study, 13 units completed the intervention. From these latter, we selected four cases using a maximum variation sampling method (Yin, 2011). From each sector, we selected one

case with a high implementation degree (respectively 88% and 99%) and one with a low implementation degree (respectively 22% and 46%). We chose this sampling strategy purposefully to accentuate patterns of relation between contextual aspects and degrees of implementation.

ASSUMPTIONS ABOUT CONTEXTUAL ASPECTS AFFECTING ORGANIZATIONAL HEALTH AND SAFETY INTERVENTIONS

As part of the extensive process evaluation of the Integrated Violence Prevention study, we adopted a systematic approach to data collection. During the development phase of the study, we identified nine contextual aspects that we assumed would influence the implementation of our intervention. To do so, we summarized the existing knowledge about contextual aspects affecting organizational interventions, relying on three reviews/framework articles about intervention implementation (Damschroder et al., 2009; Fleuren et al., 2004; Nielsen & Randall, 2013). We inspected the three frameworks for similarities and described the overarching aspects of context that are represented in at least two of these. As these articles considered contextual aspects relevant to all kinds of organizational interventions, we had to tailor them to fit the specific characteristics of the present Violence Prevention Intervention. We did so by formulating our assumptions on how we expected the specific elements of context to influence the implementation of the Violence Prevention Intervention. [Table 1](#) lists these elements, as defined by the three frameworks, and our nine specific assumptions for the Integrated Violence Prevention Intervention.

Based on these contextual aspects that we assumed would be important for the implementation of our intervention, we systematically collected data on each of these aspects (see section 2.6–2.7) to obtain comparable information in all the 16 cases recruited for the main study.

INTERVIEWS

We conducted semi-structured interviews (Silverman, 2015), before and after the intervention, with both line managers and employees separately. Pre-intervention interviews were aimed at mapping existing violence preventive practices and the context for the intervention. Accordingly, we asked about the pre-determined nine contextual aspects by, for example, asking what they hoped to gain from participating in the intervention (motivation). For these interviews, participants were selected by the line manager to represent different professional groups and grades of seniority. The purpose of the post-intervention interviews was to investigate: the implementation process, how the context had interacted with it, participants' experiences of the intervention, and

REVIEWS/Frameworks IDENTIFYING THE CONTEXT ASPECTS	CONTEXT ASPECT	CONTEXT ASSUMPTIONS ABOUT IMPLEMENTATION OF THE INTEGRATED VIOLENCE PREVENTION INTERVENTION
(Damschroder et al., 2009): Resources (Nielsen & Randall, 2013): Capacity/ resources to conduct the intervention	1. Staff cuts	<i>At work units where staff cuts occur before or under the intervention there will be a lower degree of implementation.</i>
(Fleuren et al., 2004): High and middle high turnover impedes implementation (Damschroder et al., 2009): Stable teams and low turnover promotes implementation	2. Staff turnover	<i>At work units with high staff turnover there will be a lower degree of implementation.</i>
(Damschroder et al., 2009): Management engagement promotes implementation (Nielsen & Randall, 2013): Change in management impedes implementation	3. Change in management	<i>At work units where there is a change in management just before or under the intervention the implementation will be negatively or positively affected.</i>
(Nielsen & Randall, 2013): Conflicting initiatives, concurrent use of multiple change programs and economic recession impede implementation	4. Potentially competing change processes	<i>At work units where additional, potentially competing change processes occur before or during the intervention the degree of implementation will be negatively or positively affected.</i>
(Damschroder et al., 2009): Self-efficacy promotes implementation (Fleuren et al., 2004): Self-efficacy, knowledge and competences of implementation promotes implementation (Nielsen & Randall, 2013): The organization's past use and experience with similar interventions promote implementation	5. Previous good experiences with similar interventions (in terms of process or content)	<i>Work units that are familiar with conducting similar interventions will have higher levels of implementation.</i>
(Damschroder et al., 2009): A good learning climate where managers invite for inputs and employees feel safe to try new methods promotes implementation (Fleuren et al., 2004): Hierarchical structure impede implementation (Nielsen & Randall, 2013): Bureaucratic culture and an international organization impede implementation	6. Existing culture of participation	<i>Work units with an existing culture with a high extent of employee participation will have higher levels of implementation.</i>
(Damschroder et al., 2009): Individuals' knowledge about and attitudes towards the intervention affects implementation (direction not indicated), implementation climate: strong need for change, good organization—intervention fit promotes implementation (Nielsen & Randall, 2013): Participants' mental models including attitudes towards the intervention affects implementation (direction not indicated)	7. Motivation for participation in the steering group	<i>At work units where the motivation for participation in the steering group is high there will be a higher degree of implementation.</i>
(Damschroder et al., 2009): Lack of resources impede implementation (Fleuren et al., 2004): Facilities needed to implement the intervention: economical resources, compensation, and other resources made available such as time and administrative support facilitates implementation (Nielsen & Randall, 2013): Capacity/ resources to conduct the intervention promotes or impedes implementation.	8. Resources	<i>At work units with low levels of resources caused by, e.g., a heavy inmate/patient group, intervention fatigue, competing change processes etc. there will be lower levels of implementation.</i>
(Damschroder et al., 2009): Social networks in the organization, formal and informal communication affects implementation (direction not indicated) (Fleuren et al., 2004): Integration of the innovation in existing structures promotes implementation.	9. Existing structure of the working environment organization	<i>At work units where the working environment organization has a high degree of meeting activity and a systematical approach to improving the working environment the degree of implementation will be higher.</i>

Table 1 Tailored assumptions about the influence of contextual aspects on the implementation of the Integrated Violence Prevention Intervention. Expansion of Table 3 in Jaspers et al. (2019).

how well the activities had reached the entire group of employees. In addition, we asked again about the nine contextual aspects. We conducted two types of post-intervention interviews: one interview with members of the steering group and one with employees that did

not participate in the steering group. This was done to ensure that a variety of voices was heard. A total of 19 interviews were held across the four selected cases, with 32 interview persons including four line managers, three work environment representatives, thirteen prison

officers, nine nurses and three nursing assistants. All interviews were transcribed verbatim, and the quotes used in the analysis were translated by two of the authors (SJ, BA).

FIELD NOTES AND ACTION PLANS

We wrote field notes after each intervention activity. The field notes included a free text section and sections for each context aspect that were to be filled in with regard to how each context aspect was or was not affecting the intervention activity (see Appendix 2). The free text section allowed describing more broadly what happened during the intervention activities making the analysis and the interpretations more transparent. It also enabled documenting information on context and process aspects not captured by the pre-defined contextual aspects. In total, we collected 25 field notes across the four cases. In addition, we documented all action plans developed at the steering group meetings, including information on content, people involved, and follow-up dates.

MEASUREMENT OF THE IMPLEMENTATION DEGREE

To assess the implementation of the Integrated Violence Prevention Intervention, we developed an intervention-specific implementation degree scheme inspired by Ferm and colleagues (Ferm et al., 2018). For each intervention activity, we defined fidelity, reach, and dose received (Saunders et al., 2005). All scores from the different intervention activities were summed up in a scheme as the one presented in Appendix 1, and a final implementation degree score for each case was calculated (for more details about the measurement of the implementation degree see Jaspers et al. 2019).

REALIST EVALUATION

We used a realist evaluation framework to examine the link between contextual aspects and the implementation of the intervention. As claimed by Westhorp (2014, p. 4): “Realist approaches assume that nothing works everywhere or for everyone, and that context really does make a difference to programme outcomes”. The basic assumption is that causal relations are not universal, but that causal potentials can be activated under certain circumstances. This can be illustrated by an example from the work environment assessment authorities. For example, using a fine as a means of regulating the work environment bears the potential of causing a better work environment. However, this may not always be the case, for example, in a context where it is more profitable to occasionally pay a fine. Within realist evaluation, this is called demi-regular causal relationships. The aim of an analysis performed in a realist evaluation framework, is therefore to search for patterns in contexts, mechanisms, and outcomes that can substantiate such demi-regular

causal relationships (Pawson & Tilley, 1997). Mechanism can generally be defined as the “‘hidden causal levers’ that account for how and why a program works to bring about desired changes in reasoning and behavior of participants” (Astbury & Leeuw, 2010, p. 375).

For the purpose of the present study, we relied on Dalkin and colleagues (2015), who built on the above-mentioned classic definition of mechanisms by offering a precision of the concept in which they define mechanisms as consisting of two distinct elements: program resources and participant reasoning. It is, therefore, a combination of a program’s resources, the context in which such resources are introduced and the participants’ reasoning that provides demi-regular patterns of implementation outcomes. The present study uses this analytical framework to advance knowledge on which mechanisms link different contextual aspects to different implementation outcomes of organizational violence preventive interventions (high or low implementation degree). More precisely, we identified if program resources (one of the two elements of mechanisms defined by Dalkin) were used in the existing context and which participant reasoning were developed (the other element of mechanisms defined by Dalkin). The aim will be to develop what realist evaluation terms a “middle-range theory”. A middle-range theory is not a universal law and neither a case-specific description, instead it is positioned in between the two, where patterns can be derived that can be applied to the understanding of situations sharing common characteristics (Merton & Merton, 1968).

ANALYTICAL APPROACH

The analysis was conducted using Nvivo 11. The qualitative analysis was based on thematic analysis (Braun & Clarke, 2006) and consisted of an iterative process of deduction and induction. The first step was to familiarize with the data. To this end, the first author (SJ) re-read transcripts of interviews and field notes and re-listened to selected recordings of intervention activities. The writing of the field notes had already in itself constituted a step in the analytical work, as the field notes were structured around the context assumptions. In so doing, the researchers most involved in this task (SJ, IK, DA, AM) were forced to think in an analytical (as compared to a mainly descriptive) fashion when writing the field notes (See Appendix 2: Field Note Template). For example, the researchers had to answer questions related to the contextual aspect “resources” (number 8 in [Table 1](#)) for each activity: *How are the mental resources for participating in the intervention? How was that evident throughout the activity? What consequences did it have?*

The second step was to begin coding. The first author (SJ) derived initial codes from the context assumptions

presented in [Table 1](#). The initial coding with the nine codes was done on a subset of the material from one case in the prison and probation service with a low implementation degree. Based on the initial coding, the coding tree was then expanded with several sub-codes as well as new codes for contextual aspects. During this process, it became clear that, for example, the predefined assumptions about the influence of staff cuts and staff turnover on the implementation overlapped with a more prominent context that was mentioned by both staff and line managers, namely the high levels of sickness absence. The latter had a similar influence on the implementation process of both intervention activities and action plans since it created a lack of continuity in staff and a lack of mental resources as a result. From the first coding, it was also evident that the direction of the assumptions was not always found in the material. This applies for example to the code “competing change processes”, which was renamed and became “parallel change processes”, thereby opening up to the possibility of noticing synergetic effects brought about by other change processes in the organization. After discussing these first changes to the codes with three co-authors (BA, JD, PC), these new codes were applied to the dataset consisting of four cases. The most prominent contextual aspects were identified by assessing the number of sources (interviews, field notes, etc.) and the number of cases. We decided to use the three most prominent contextual aspects to build the proposed *Mechanism (program resources) + Context + Mechanism (Participant reasoning) = Outcome* configurations, and looked at various context/high implementation and context/low implementation constellations. We did this to get an idea of the possible patterns in mechanisms across the four cases. We chose to rely on these major patterns to focus the analysis, which meant leaving out less salient aspects of the context, such as the role of the facilitator, existing degrees of employee involvement, and the educational level of the participants. Having different types of longitudinal data collected over the course of eight months (pre- and post-intervention interviews with line managers and employees, field notes, action plans) enabled us to triangulate data patterns.

ETHICS

Before data collection, the study was approved by the National Research Centre for the Working Environment on behalf of the Danish Data Protection Agency (Journal no. 2015-57-0074). No approval by the Danish National Committee on Biomedical Research Ethics was required, as we did not collect any biological material. All interviewees consented verbally to the recording of the interviews and the following use of the material in anonymized form. Participants were informed that they could retract their consent at any time. The facilitators of

the intervention activities had access to supervision from a trained psychologist.

RESULTS

CONTEXTUAL CHARACTERISTICS OF THE SELECTED CASES

We gave each of the four cases a name (label) based on their main contextual characteristic. Case 1 was labeled “The ceiling effect case”. We choose this name because it became evident during the first mapping interviews that this psychiatric unit had a high level of systematism in their violence preventive efforts. As systematism in improving violence preventive practices was the main outcome of the effect evaluation, their chance of improving this element was smaller (ceiling effect). Case 2 was named “The repelling case”. This was another psychiatric unit in the same hospital but facing a different situation at the time of the preparation meetings for the intervention. Over the previous 12 months, this unit had experienced an unplanned merger, two changes in management, and high rates of turnover and sickness absence. During the planning phase of the intervention, the research team met some frustrated line managers and employees who were under a lot of pressure resulting in a sometimes repelling attitude. Case 3 was named “The ambitious case”. It was a detention unit in a prison with extensive problems of violence and threats, engendering what the line manager called a “burning platform” for participating in the intervention. The ambition was especially carried by the line manager, who was determined to succeed in this project. Case 4 was named “The demanding case”, because the unit requested more help than the intervention team could offer. It was a detention unit from another prison that recently was assigned to a different type of inmates. For this reason, line managers and employees were in the process of reshaping the way the prison officers approached their task. This change process, together with the lack of resources, demanded a lot of mental resources from the staff and the line manager. Although the participation in the research study provided some resources, the research team experienced that especially the line manager asked for more help than was available within the intervention study.

KEY CONTEXTUAL ASPECTS

As reported in [Table 2](#), the three most prevalent contextual aspects across the four cases were: (I) parallel change processes, (II) existing culture of participation, and (III) resources. These were present in a large amount of material (each in more than 30 written pages of data, e.g. transcribed interviews or filed notes) and constituted the point of departure for building the Context-Mechanism-Outcome constellations.

CONTEXTUAL ASSUMPTION	NUMBER OF DATA SOURCES	NUMBERS OF QUOTES FROM DATA
1. Staff cuts	9	14
2. Staff turnover	1	1
3. Change in management	12	18
4. Parallel change process	23	52
5. Previous good experiences with similar interventions (in terms of process or content)	1	1
6. Existing culture of participation/proactivity	24	61
7. Motivation for participation in the steering group	23	36
8. Resources (time, economy, mental energy, staff meetings, “the right staff”)	85	197
9. Existing structure of the working environment organization	2	3

Table 2 Contextual aspects present in the data material.

MECHANISMS IDENTIFIED FOR IMPLEMENTATION

From the aforementioned three key contextual aspects, we looked for patterns in how these were connected with the implementation degree, using a realist evaluation approach. This resulted in three main mechanisms leading to high implementation of the intervention. Using the concept of mechanisms from Dalkin and colleagues (2015) (*Mechanism (program resources) + Context + Mechanism (Participant reasoning) = Outcome*), we describe below for each mechanism how a central program resource was introduced into a specific context that led participants to a specific reasoning about the intervention—and how this reasoning results in high or low implementation (our outcome, which was given as the cases were selected according to their high or low implementation degree). In the end (in [Table 3](#)), we summarize the contextual aspects and mechanisms of the four cases with high and low implementation degree.

CONTEXT-MECHANISM-OUTCOME-CONFIGURATION FOR MECHANISM I: PRIORITIZATION OF VIOLENCE PREVENTION

A central resource of the intervention program was that it created a frame for prioritization of violence prevention and support for handling episodes of violence at the top-management, line management, and employee level. This part of the mechanism, however, was activated only in contexts where there were actual resources available. This means that, in departments where there was no, for instance, extra time available due to high workload, it was difficult to initiate new actions for violence prevention. “The ceiling effect case” was a case where this program resource (prioritize violence prevention through focused and assigned activities) met a context of high levels of resources (stable staff, stable line manager,

mental resources). This elicited a reasoning that this intervention program could help work with something that seemed important for the work unit (work environment improvements, diminishing violence, and threats). The line manager expressed the reasoning about the intervention program in this way:

Line manager Helen: [...] as I know my staff, I do not think we will meet resistance to change. They are very open-minded especially, when we approach them with the intention to improve their work environment (Case 1: “The ceiling effect case”, interview with line manager pre-intervention).

This positive reasoning about the intervention was part of their motivation for conducting the steering group meetings and making action plans followed up by actual action, all leading to a high degree of implementation. On the contrary, in the “the demanding case” the program resources (prioritizing violence prevention through focused and assigned activities) clashed with a low-resource context (insufficient staffing, competing change processes, high quantitative demands). On several levels, they experienced that such a lack of resources obstructed the possibility of prioritizing violence prevention activities. In the leadership seminar, the top manager complained about the cutbacks they had experienced and how this made prioritizing violence preventive activities difficult. In light of this situation, the management and staff welcomed the intervention for the chance it gave to the full staff to gather to discuss violence prevention. Still, both employees and the line manager experienced that insufficient staffing and high workload were preventing them from prioritizing the action plans in between the intervention activities. This became visible in the steering group meetings, wherein the line manager and the employees found it impossible to find room in the work

	PSYCHIATRIC WARDS	PRISONS (BOTH DETENTIONS)
High imple-men-tation degree	Case 1: The ceiling effect case Implementation degree: 88% Contextual characteristics: (4) * Parallel change processes providing new resources (6) Strong culture of participation and proactivity (8) High level of resources (9) Systematism in existing Work Environment Organization (WEO) and quality work Mechanisms (Strength): - Experienced prioritization and support (Medium) - Synergetic effects with other projects (Strong) - Fit with existing way of working (Strong)	Case 3: The ambitious case Implementation degree: 99% Contextual characteristics: (4) Parallel resource demanding change processes of merger, change in management and change in shift system, sanctioned by the work environment authorities (6) weak degree of employee participation and proactivity (8) Recent increase in resources from very poor to less poor (staffing, sickness absence, economy) (9) Systematism in existing WEO but not in quality work Mechanisms (strength): - Experienced prioritization and support (Medium)
Low imple-men-tation degree	Case 2: The repelling case Implementation degree: 22% Contextual characteristics: (4) Mix of parallel resourceful (Safewards, safety briefing) and demanding (recent merger, change in management) change processes (6) Strong culture of participation and proactivity (8) Low levels of resources: sickness absence, turnover (9) Systematism in existing WEO and quality work Mechanisms (strength): - Fit with existing way of working (Medium) - Synergetic effects with other projects (Weak)	Case 4: The demanding case Implementation degree: 46% Contextual characteristics: (4) Resource demanding parallel change process: sanctioned by the work environment authorities, acute severe episodes of violence from gang members (6) Weak culture of participation and proactivity (8) Low levels of resources: high level of sickness absence, change in number and types of inmates and in work tasks led to experienced time pressure and experienced staff cuts (9) No systematism in existing WEO and quality work Mechanisms (strength): - No mechanisms were activated in this case due to a context with lack of resources

Table 3 Overview of contextual characteristics and mechanisms present in the four cases.

*These numbers refer to the context factor presented in Table 1.

schedule for the violence preventive action plan they were working on. In a field note, the researcher describes this situation as follows:

In relation to their work with the action plans, Adam says that their department is one of the most understaffed—“did you note that down?” [he said]. The group cannot find time during the day where they can down prioritize anything else to find time for [their action plan] [...] They go through all the possibilities for freeing up time [...] : getting help from other departments or reducing the inmates’ opportunities to go to the fitness-room, but they end up with the conclusion that this would create more conflicts than the action plan could prevent (Case 4: “The demanding case”, Field note, 1st steering group meeting).

As a result, the participants from this department developed a hopeless attitude towards the intervention, as they concluded that almost nothing could be done given their current staffing situation. The department

failed to hold the two last steering group meetings and ended up with a lower implementation degree.

CONTEXT-MECHANISM-OUTCOME-CONFIGURATION FOR MECHANISM II: SYNERGETIC EFFECTS WITH OTHER PROJECTS—BUILDING ON WHAT IS ALREADY THERE

In “the ceiling effect case”, we also found a mechanism for implementation that consists of a synergy between the intervention introduced by our research project and other already existing projects in the work unit. More specifically, this unit benefitted from the work that had already been done with related projects aimed to reduce coercion, such as the introduction of safety briefings. The program resource that formed part of this mechanism was the tailored element of the intervention. Specifically, the seminar and the steering group meetings provided a frame for collaboration and gave the work units the possibility to speak about violence prevention and initiate action plans on what they deemed fit for their current situation. In the ceiling effect case, there was a context

of several parallel projects on the reduction of coercion. These projects were decided politically, and therefore the work unit was obligated to implement them. Although these projects were seen as good initiatives with something to offer in terms of new and better ways of approaching the care work, employees and their line manager felt pressured to make many changes in a limited time frame. At the same time, they felt that the parallel projects focused mainly on patient safety and less on employee safety. A decisive part of the context in this unit was also that they had an experienced line manager with a good overview of all the projects the unit had to engage in. This context, in combination with the program resource of a tailored/open intervention, led to a situation where the unit was able to combine all the projects in the Violence Prevention Intervention, with the common goal of improving both employee and patient safety. This is also illustrated in the field notes from the management seminar:

The line management (and the management team above) had a lot of focus on reducing constraints. However, they did not see this as a problem with regard to implementing the Integrated Violence Prevention Intervention project, as both activities were related. The line manager herself suggested that it would be important to highlight this overlap in order to be able to prioritize both (in the regular working day). This approach meant that the action plans for the prevention of violence and threats could constructively be integrated with existing measures for the reduction of coercion (Case 1: “The ceiling effect case”, field note, leadership seminar).

This synergetic effect facilitated the implementation process, because, as the line manager pointed out, it increased the prioritization of the intervention activities. From the interviews pre- and post-intervention with the line manager it was clear that she played a central role in creating such synergy and protecting the employees from the tasks related to documentation of the different projects. In this way, it was possible to combine a number of issues they had to deal with, which led to the experience of being very effective; namely, that the project actually saved them time instead of deducting time from other important tasks.

In contrast, the opposite situation was found in “the ambitious case” that can be seen as a negative example of the “synergetic effects with other projects” mechanism. In this work unit, the intervention met a context characterized by *competing* change processes, that is, other changes that also demanded resources. These included a merger that occurred in the six

months prior to the beginning of the intervention, ten different middle managers in the previous ten years, and a new shift work management system that reduced flexibility in the employees’ planning of working hours. In addition, during the last month of the intervention, the work unit was sanctioned by the work environment authorities for too high time pressure and inadequate prevention of risks of violence and threats. Together, all these events demanded a lot of mental resources and reduced employees’ motivation for getting involved in new activities. This is illustrated by the following excerpts from a post-intervention interview:

Prison officer Jack: [...] It is as if the good intentions can’t keep up with reality, right? You launch a project and then you lose two colleagues. And then we have to figure out new solutions[...] Things change all the time. So, all the things you agree on, you might have to start all over again with new people (Case 3: “The ambitious case”, interview with employees not in steering group, post-intervention).

In contrast to “the ceiling effect case”, in the “ambitious case” there was no synergy with other projects but a lack of mental resources to engage in the intervention, despite a line manager that was determined to improve their violence preventive practices.

CONTEXT-MECHANISM-OUTCOME CONFIGURATION FOR MECHANISM III: INTERVENTION FITS WITH EXISTING WAYS OF WORKING

The last mechanism identified was activated by the key contextual aspect: Existing culture of participation/proactivity. In the psychiatric ward that we named “the ceiling effect case”, the hospital was already very proactive and used to work with principles of LEAN Management. Therefore, they knew how to work collaboratively in a systematic way, and they were able to integrate the program resource (the “idea-bank” of good preventive ideas from the employee seminar) into their existing practice of participation and proactivity. This is illustrated in the line managers’ reflections about the intervention project:

[...] It has not been substantially different to the way they [employees in this department] normally work. In general, they are good at generating new ideas together and talk about how to solve a problem. We are very solution oriented. If we come across something [...] where we think we could improve something, then we are fast to test out new solutions. I think we are permeated with this PDCA model (Plan-Do-Check-Act model of

LEAN management), that is we test out things on a small scale and if we think it works very quickly implement it in our way of working (Case 1: “The ceiling effect case”, interview with line manager, post-intervention).

In combination with a context of a stable staff and management, and no major competing change processes, this made it easy for them to work with the intervention set up and created a positive attitude about the intervention and a subsequent high degree of implementation.

“The repelling case” provides an example of a case wherein the mechanism was “blocked” by lack of resources despite a context of existing participation and proactivity. The program resource (the “idea bank” created on the employee seminar) seemed to be easy to use in combination with their existing way of working proactively with prevention activities and reporting of violence and threats. In the pre-intervention interview the line manager described their current proactive work environment work as follows:

Line manager: It works in our unit. And I know that this is not the case in all units. [...] we have a fixed procedure for treating registrations of violence and threats, what we do, when we call in for this or that [...] it runs smoothly so no need to change anything there (Case 2: “The repelling case”, interview with line manager, pre-intervention).

However, in this case the context was characterized by low levels of resources, in terms of high turnover and sickness absence, new line managers and competing change processes. This becomes visible in the difficulty they have to gather everyone for the employee seminar. In addition, already in the first steering group meeting the researcher reported in the field note that the conditions and resources made it difficult for this unit to hold the meetings and implement the action plans. Despite a constructive and fruitful employee seminar wherein they developed many actionable ideas for preventing violence, the unit had to cancel steering group meetings repeatedly because of the daily time pressure, which resulted in a low implementation degree. This suggests that a lack of resources can block other favorable contextual aspects and mechanisms.

SYNTHESIZING RESULTS

Table 3 provides an overview of the four cases and their respective contextual aspects, mechanisms and implementation degree. To point out how the contextual characteristics relevant to each case refer to our assumptions about contextual aspects, **Table 3** also

presents these contextual aspects with their respective number as shown in **Table 1**.

Based on the results, prioritization, synergy with other projects, and intervention fit were identified as the main mechanisms supporting implementation degree. These mechanisms were more or less in place or activated, depending on different contextual aspects. Specifically, resource availability, parallel change processes and an existing culture of participation/proactivity were important contextual aspects in the implementation of the Integrated Violence Prevention Intervention programme. In the context of low resources and competing parallel change processes, all mechanisms were prevented from being activated, thereby resulting in low degrees of implementation. In contrast, high levels of resources and resource-providing parallel change processes, as well as a context of exiting culture of participation/proactivity, triggered high degrees of implementation through the mechanism of prioritization, synergetic effects, and fit with existing ways of working.

DISCUSSION

In line with our results, other studies found that resources are important contextual factors that influence organizational interventions (Damschroder et al., 2009; Fleuren et al., 2004; Nielsen & Randall, 2013). Our findings also converge with more recent studies from psychiatric wards, which found that staffing levels (quantity and stability) are essential for the implementation of interventions to reduce coercion (McKeown et al., 2019; Price et al., 2018; Price et al., 2016). None of these studies, however, examined resources as elements potentially outplaying other aspects in supporting implementation.

The important role played by resources in our study findings can be understood through the lens of the conservation of resources (COR) theory (Hobfoll, 1989). The theory was originally developed for understanding resources on an individual level but has more recently been expanded to inform the understanding of resources in organizations (Hobfoll et al., 2018). COR posits that “people must invest resources in order to protect against resource loss, recover from loss of resources and to gain resources” (Hobfoll et al., 2018, p. 106). Applied to our study, it can be put forth that those workplaces equipped with fewer resources are not able to use the new resources that the intervention offers them, thereby ending up with a low implementation degree of the intervention. In terms of the COR theory, this dynamic of resource (non)use is described as resource loss cycle. Specifically, high levels of stress occur when resources are lost, and the stressful state in itself makes it difficult to make use of new resources and to protect against further resource loss, leading to a vicious spiral that causes further resource depletion. In our results, this is apparent

in the contextual aspect of lack of resources, where, for instance, many competing change processes and high levels of sickness absence caused a lack of mental resources, or, in terms of COR, stress responses that made participants less able to implement the intervention. In the two high-risk occupational sectors examined in this study, loss of resources can be experienced as even more stressful than in other sectors. This may occur because, in a context where low quality of primary tasks can lead to violence and threats, demanding aspects such as understaffing, not knowing your colleagues (temporary personnel) or knowing that your colleagues are not familiar with the patients/inmates are all aspects that can engender high levels of stress among employees.

Finally, the mechanisms of intervention fit (mechanism III) has been identified by other authors as an important factor for the outcome of organizational health and safety interventions (Randall & Nielsen, 2012; Smith et al., 2015). In a realist review of the implementation of a work environment certification system, Madsen and colleagues (2020) identified a similar mechanism. They concluded that the certification “will not work as a ‘silver bullet’ or panacea for every organization”. Our findings concur with these studies, but it adds to this by suggesting that the mechanism of intervention fit can only be activated in the presence of sufficient resources, while insufficient resources may prevent such a mechanism from operating.

CONTRIBUTION TO A MIDDLE-RANGE THEORY FOR VIOLENCE PREVENTIVE EFFORTS

Based on our empirical findings, we suggest a middle-ranged theory of complex violence prevention efforts relevant to sectors characterized by high levels of contact with clients. Our theory adds to DeJoy’s theory of safety culture change (DeJoy, 2005) that served as theoretical underpinning of our intervention (Jaspers et al., 2019). In his model of culture change to promote a higher degree of safety culture, DeJoy introduces the concept of *exogenous influences* that affect the process of culture change. These exogenous influences are not further specified by DeJoy, and it thus remains unclear *how* they affect the culture-changing process. In this regard, the results of our study might contribute to advancing our understanding by suggesting that, when it comes to developing interventions aimed at changing the safety culture in psychiatry and the prison and probation services, the exogenous influences given by resource availability, parallel change processes, and existing systematization in work environment organization or other quality work, may operate as key elements of the implementation process. DeJoy also argues that an integration of bottom-up and top-down processes is

needed to improve safety. In this line of thought, some of the mechanisms we identified can be considered as implementation of both bottom-up and top-down safety approaches. On the one hand, the mechanism of prioritization and support can be seen as supporting a top-down approach. On the other hand, the mechanism of intervention fit can be seen as supporting the data-driven problem-solving element of the bottom-up approach. The CMO configurations identified in this study can thus be used to better understand how different contextual aspects or exogenous influences affect the implementation of an integrated approach to safety and violence prevention, and more specifically, which contextual aspects influence the top-down and bottom-up elements of a safety intervention.

STRENGTHS, LIMITATIONS AND GENERALIZABILITY OF THE FINDINGS

A strength of this study is that we systematically collected information about predefined context aspects and implementation processes, thereby making it possible to analyze how context and implementation are linked. The data were collected throughout the intervention project, allowing us to identify mechanisms and treat them not as stable factors being present or not, but as dynamic aspects evolving along the course of the intervention. Although line managers chose the employees we interviewed, we do not believe that this limited the variety of viewpoints that existed among employees. The interviews were only one data source in our comprehensive data collection which made it possible to document a number of different viewpoints.

A limitation of the study is that the realist evaluation approach was added as an extension of the evaluation framework developed by Fridrich and colleagues used for the initial evaluation set-up of the intervention as presented in (Jaspers et al., 2019). Therefore, we had no program theory for the mechanisms connecting the different contextual aspects to the implementation degree and instead created them in an explorative process. Further studies of organizational violence preventive interventions are needed to develop informed program theories, possibly using our findings and test them empirically in replication studies. As a next step in identifying patterns in contextual aspects and implementation of complex organizational OHS interventions, future studies could test the CMO configurations identified in this study in other sectors such as schools or care homes or for interventions targeting other types of work environment issues, such as work-related stress or emotional demands. Another limitation is that we were not able to assess the perspective of the inmates and patients. Our focus has been on managers’ and employees’ perspectives on the implementation of

a work environment intervention study about improving violence prevention. While the intervention had a strong focus on involving employees and their line managers to develop strategies that fit to their specific challenges, due to resource constraints it was not possible to also study how inmates and patients experience how conflicts develop and how they think conflicts can be prevented. The analysis was conducted on a subset of four out of 13 cases. The generalizability of the present findings to the other cases was suggested in a Danish report presenting the results of a thematic analysis of the post-intervention interviews conducted with members of the steering group from all 13 cases (out of the 16 recruited, three cases dropped out). The analysis revealed that synergy with exiting efforts, time and mental energy, and the fact that the intervention was facilitated by an external team, were all factors that employees experienced as influencing the implementation process (Andersen et al., 2021).

PRACTICAL IMPLICATIONS

Our findings suggest that one should be cautious in initiating intervention programs such as the Integrated Violence Prevention Intervention in low-resource environments and in workplaces with competing parallel change processes. Although we still need information on the dose-response of implementation before providing conclusive recommendations about whether this intervention should be introduced only in work units with a certain level of resources, it seems that lack of resources and competing change processes are major obstacles for the implementation of this complex intervention. At the same time, previous findings show that the risk for violence at work is highest in contexts with few resources because of high quantitative demands (Andersen et al., 2018; Estryn-Behar et al., 2008), leading to the known paradox that those that would need the intervention the most are probably those being the least equipped for implementing it (Nielsen & Noblet, 2018). In high-risk sectors for violence, this paradox has a special feature, since high levels of violence can cause high levels of sickness absence (Biering et al., 2018). A pre-intervention assumption was that turnover and staff-cuts would be the main contextual aspect causing a discontinuity in implementation; however, in line with the study by Biering (2018), we found that the main reason for discontinuity was high levels of sickness absence. Therefore, improving violence prevention in workplaces with high levels of violence at work and low resources (including high levels of sickness absence) and/or competing change processes, calls for interventions that supply these workplaces with sufficient support to develop and implement the necessary improvements and/or with enough time to work their way out of this negative cycle.

CONCLUSION

In this study, we found three key contextual aspects for the implementation influencing the Integrated Violence Prevention Intervention, namely, resource availability, parallel change processes and culture of participation/proactivity. We found that these contextual factors triggered the three identified mechanisms, that is, prioritization, synergy with other projects, and intervention fit, all of which were associated with a high degree of implementation. From the four cases analyzed, it was clear that different combinations of contextual aspects triggered or inhibited the three identified main mechanisms, and that lack of resources and competing change processes were contextual aspects that “blocked” all mechanisms even in the presence of other favorable contextual factors. The study, therefore, contributes with empirical findings that underscore what also other evaluation frameworks have emphasized, namely that the effectiveness of complex organizational workplace interventions can only fully be assessed through investigating the interaction with the specific workplace context and through a better understanding of the mechanisms that make these interventions work under these conditions.

ADDITIONAL FILE

The additional file for this article can be found as follows:

- **Appendices.** E-appendix 1 and 2. DOI: <https://doi.org/10.16993/sjwop.141.s1>

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COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR CONTRIBUTIONS

See contributions in parenthesis:

- 1) Substantial contributions to conception and design (SJ, BA, JD, LPA, PC), or acquisition of data, and analysis and interpretation of data (DA, AHP, IK, SJ).
- 2) Drafting the article or revising it critically for important intellectual content; (SJ, BA, JD, LPA, PC, DA, AHP, IK).
- 3) Final approval of the version to be published; (SJ, BA, JD, LPA, PC, DA, AHP, IK).

- 4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved (SJ, BA, JD, LPA, PC, DA, AHP, IK).
- 5) Agreed to be named on the author list, and approved of the full author list (SJ, BA, JD, LPA, PC, DA, AHP, IK).

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