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Simple roads to failure, complex paths to success: An evaluation of conditions explaining perceived fit of an organizational occupational health intervention

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Abstract

Organizational occupational health interventions (OOHIs) that are perceived by employees as relevant for their workplace are more likely to be implemented successfully, yet little is known about the conditions that produce such perceptions. This study identifies the conditions that create a perception among employees that an intervention fits their organization as well as the conditions that result in low levels of perceived fit. We used two-wave data from 40 Danish preschools that underwent a quasi-experimental OOHI. Perceived fit was assessed through employee ratings at follow-up, while survey responses from implementation team members at five time points were used to assess four context and 14 process factors. The results of a coincidence analysis showed that high levels of perceived fit were achieved through two paths. Each path consisted of a lack of co-occurring changes together with either

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very high levels of managerial support (path_1) or a combination of implementation team role clarity, staff involvement, and team learning (path_2). In contrast, low levels of perceived fit were brought about by single factors: limited leader support, low degree of role clarity, or concurrent organizational changes. The findings reveal the complexity involved in implementing OOHIs and offer insights into reasons they may fail.

KEYWORDS
CNA, coincidence analysis, implementation, implementation team, intervention fit, occupational health intervention, organizational change, participatory intervention, preschools, process evaluation

INTRODUCTION

Organizational occupational health interventions (OOHIs) have been widely recommended for the prevention and management of stress within organizations (International Labor Organization, 2001; Occupational Safety and Health Administration [OSHA], 2016). Such recommendations are based on findings that show OOHIs can be effective in reducing stress and sickness-related absences (Giga et al., 2003; LaMontagne et al., 2007; McVicar et al., 2013; Montano et al., 2014; Roodbari et al., 2022). However, such findings have not been consistent; for instance, systematic reviews have demonstrated that only 30–50% of OOHIs achieve their intended outcomes (Corbière et al., 2009; Fox et al., 2021; Montano et al., 2014). These findings have led organizational researchers to study context and process factors that affect intervention outcomes (Nielsen & Randall, 2013; Sanz Vergel & Nielsen, 2021). Organizations are complex systems, and intervention success can be influenced by conditions related to internal and external organizational context (e.g., pre-existing work conditions), to the intervention and its implementation (e.g., reach, fit, and activities), and to participants' mental models of the intervention (e.g., change readiness; Nielsen et al., 2022; Nielsen & Randall, 2013).

One measure pertinent to understanding long-term intervention outcomes is the assessment of employees' perceptions of *intervention fit*, which refers to the extent to which employees in the organization perceive the intervention's objective and design as relevant to meeting the needs of the workplace (Randall & Nielsen, 2012). If an intervention is seen as appropriate and relevant, employees are more likely to support the intervention activities and ensure that it has a sustainable impact beyond the intervention project time frame. In OOHI research, tailoring the intervention to the organization's needs and the organizational context is considered a factor that increases the likelihood of a successful intervention outcome (Nielsen & Randall, 2015). Indeed, past research has shown that employee perception of intervention relevance is

positively linked with psychosocial outcomes beyond exposure to the intervention (Hasson et al., 2014). Nevertheless, despite the potential importance of intervention fit for intervention success, we know little about specific aspects of organizational context, the intervention, and the implementation of the intervention that impact employees' perceptions of such fit. Related questions include the following: What context and process factors are needed to make the intervention relevant to staff? How do factors combine to impact employees' perceptions of intervention fit? What are alternative ways to achieve high intervention fit? What factors impede intervention fit? The objective of this study was to understand the conditions that may create a perception among employees that an intervention is an appropriate fit for their organization, meaning that it is perceived as relevant to their workplace, as well as to understand the conditions that promote employees' perceptions that an intervention is not a good fit for the organization.

This research contributes to the literature in three ways. First, we unpack the conditions that make a difference for shaping employees' perceptions of intervention fit. We do so by embracing the following causal complexities inherent in organizational reality. On the one hand, some conditions may be necessary, that is, always have to be present, to achieve high relevance. On the other hand, some conditions may be sufficient but not necessary, that is, are linked to high relevance; thus, there could be multiple alternative paths that may lead to the same outcome. Finally, some conditions may be relevant only when occurring in combination with other conditions. Thus, the contribution includes unpacking "difference-making" context and process conditions that lead employees to perceive interventions as being a better fit for their organization. The contribution also includes how context and process conditions combine to produce effects, as well as the multiple alternative paths leading to perceptions of fit. Such nuanced understanding of how intervention fit is achieved allows researchers and practitioners to better adjust the implementation of occupational health interventions to the organizational context.

Second, the predominant approach to studying OOHIs is to focus on understanding what leads to their *success*. Less research has focused on the conditions that lead to their *failure*. Conditions that promote intervention's success may not be the same conditions as those that break the intervention. For instance, while manager support for an intervention may be crucial for its success, a lack of managerial support may not be enough to disrupt the successful implementation of that intervention. Therefore, another question we pose is: Are different process and context factors responsible for making an intervention relevant compared to those that influence the perception of an intervention as irrelevant?

Third, with this paper, we introduce coincidence analysis (CNA) as an alternative or supplemental analytical approach to evaluate OOHIs and to identify particularly salient implementation factors. CNA is a mathematical, cross-case method designed to address causal inference and complexity using the principles of Boolean algebra and set theory (Baumgartner & Thiem, 2015; Whitaker et al., 2020). While CNA has an established and rapidly growing peer-reviewed literature in multiple disciplines, including implementation science (Whitaker et al., 2020), public health (Longest & Thoits, 2012), political science (Haesebrouck, 2019), business administration (Greckhamer et al., 2008), and sociology (Spangaro et al., 2016), to the best of our knowledge, this type of analysis has not been applied in work and organizational psychology and occupational health psychology prior to the current study. By applying CNA in this study, we seek to expand the methodological repertoire used to evaluate organizational interventions and to advance scholarship in organizational research on this topic (Sanz Vergel & Nielsen, 2021). The capability of CNA to uncover combinations of factors and alternative paths

related to specific outcomes enables the identification of likely pathways to success that otherwise may go undetected.

INTERVENTION FIT

Multiple factors that relate to organizational context, intervention content, and intervention process can affect how interventions are designed and implemented. Literature reviews that have synthesized knowledge about these factors have inspired the creation of several implementation frameworks or models that identify key factors at various levels that facilitate or impede effective intervention implementation (Aarons et al., 2011; Damschroder et al., 2009; Fixsen et al., 2009). For instance, the promoting action on research implementation in health services (PARIHS) framework comprises three interacting core elements that describe distinct groups of factors relating to the evidence behind the practice, the context in which it is introduced, and the facilitation process (Kitson et al., 1998; Rycroft-Malone et al., 2002). At the same time, the consolidated framework for implementation research (CFIR; Damschroder et al., 2009) describes 39 constructs in 5 major domains: the intervention (e.g., costs, adaptability, and source), the inner setting (e.g., readiness for change, implementation climate, and structure), the outer setting (e.g., client or patient needs, policies, and competition), the individuals involved (e.g., self-efficacy, beliefs about the intervention, and degree of organizational identification), and the process by which the implementation is accomplished (e.g., employee participation, intensity of implementation, and quality of action plans). Nielsen and Randall (2013) proposed that the factors that impact the outcomes of an OOHI can be grouped into three categories: intervention design and implementation (e.g., degree of participation, support from management, communication), intervention context (e.g., history of intervention initiatives, presence of competing changes/processes, and pre-existing well-being), and participants' mental models of the intervention and their work situations (e.g., change readiness, perception of intervention activities, and collective self-efficacy). All these frameworks assume that successful implementation is a function of the outlined factors and their interrelationships. That is, these factors are said to interact in complex ways at multiple levels to affect implementation effectiveness.

Many of the syntheses and frameworks mentioned identify *intervention fit* (also labeled as appropriateness, compatibility, or relevance) as a key implementation outcome. In fact, Nielsen and Randall (2013) argued that participants' perceptions of intervention fit mediate the link between exposure to the intervention and the intervention's outcomes. Proctor et al. (2011) referred to *appropriateness*, which they defined as the perceived fit, relevance, or compatibility of the intervention for a given setting or end-user. It can also relate to the perceived ability of this intervention practice to address a particular issue (Proctor et al., 2011). Thus, intervention appropriateness describes the extent to which the intervention objective and design are aligned with the organizational needs, as well as the organizational context and the individuals who work in the organization. Similarly, CFIR addresses *compatibility*, defining it as the "degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems" (Damschroder et al., 2009). Moreover, Randall and Nielsen (2012) extended the construct of person–environment fit to the intervention research domain by defining *environment–intervention* fit and *person–intervention* fit. The environment–intervention fit relates to constraints and

opportunities in the organizational setting that influence the perceived appropriateness of the intervention (Nielsen & Randall, 2015; Randall & Nielsen, 2012). The environment–intervention fit addresses whether an intervention is the appropriate option for the issue and the specific organization (e.g., whether the intervention fits with the organization's goals, values, norms, and practices). Person–intervention fit relates to employees' perceptions of benefits they can obtain from the intervention. Fit may also relate to the appropriate selection of staff to implement the intervention (Fixsen et al., 2005), which has been shown to affect satisfaction with organizational change (Nielsen et al., 2021). The notion of fit brings about the concept of alignment of the intervention with the organization with respect to both choosing the right intervention and adapting that chosen intervention to the specific needs of the organization and the employees (von Thiele Schwarz & Hasson, 2013). Henceforth, we will use the umbrella term 'intervention fit' to encompass all of the above meanings and conceptualizations of fit.

Randall and Nielsen (2012) asserted that the key outcome of intervention fit is the translation of intervention plans into concrete activities. Taking the organizational context into consideration will decrease the likelihood of the intervention failing or being abandoned. For instance, in high workload environments, an intervention that requires much time and effort from participants is more likely to suffer from poor implementation. Furthermore, when resources are scarce, implementing a less costly intervention is prudent. In addition, ensuring intervention appropriateness regarding the organizational context may reduce the risk of conflict with existing organizational procedures, practices, and mindsets (Storkholm et al., 2017). Better intervention fit may also facilitate stakeholder engagement (Bauer & Jenny, 2012; Nielsen & Abildgaard, 2013). Moreover, understanding the organizational context and using processes and structures that are already available will help integrate the intervention into the organization to allow for successful implementation (von Thiele Schwarz et al., 2021). Finally, intervention fit is a factor important to its perceived sustainability (O'Loughlin et al., 1998).

The recognized importance of intervention fit has resulted in its inclusion in an evaluation framework as an indicator of the success of the planning and early implementation of organizational-level occupational health interventions (von Thiele Schwarz et al., 2016). In other words, to achieve this implementation outcome, we need to better understand the conditions that shape it or prevent it.

WHAT ENHANCES INTERVENTION FIT?

Prior research points to several factors that may impact intervention fit. One such factor is employee participation: planning and developing the intervention by engaging workers' and managers' voices facilitates a better fit of the intervention to the context, including the context of company policy, company programs and practices, and company strategies focused on the workplace level (Peters et al., 2020). In a study by Benazzi et al. (2006), plans for behavior support in educational settings were rated higher for contextual fit when they were developed by school-based teams rather than by behavior specialists alone. In participatory processes, employees engage in sense-making, which allows them to generate a shared understanding of the need for the intervention and the intervention's target (Nielsen et al., 2013; Roodbari et al., 2021).

In the literature, line managers have often been referred to as having the potential to either make or break an intervention (Nielsen, 2017). Their position is highly relevant as a link between senior management and employees. During OOHIs, their role often involves communicating decisions, translating plans of change into actions, and prioritizing goals and activities, all of which affect the implementation of an intervention (Lundmark et al., 2018). Line managers also have insight into organizational practices and structures. Indeed, past research has demonstrated that managers' activities and engagement predicted how well an intervention was implemented (Biron et al., 2010; Lundmark et al., 2017, 2018; Nielsen & Randall, 2009). Lundmark et al. (2018) showed that intervention-specific transformational leadership produced change in expected intervention outcomes via employee perceptions of intervention fit. This means that with their actions, transformational leaders enhanced perceptions of fit and facilitated achievement of environment–intervention fit and person–intervention fit. For example, managers may encourage the formulation of a common vision, where the intervention is construed as essential for achieving the goal and gains for employees (e.g., better work environment). By inspiring employees to participate in intervention planning and activities, managers facilitate employees' perceptions of an intervention's fit by ensuring that employee needs and knowledge of the organizational context are considered when the intervention is introduced and implemented. Thus, managers' role is to align the intervention with the organization by creating opportunities for change to take place, ensuring the availability of necessary resources, providing direction, and linking the intervention to important organizational goals (von Thiele Schwarz & Hasson, 2013).

The perceptual distance literature has shown that managers and employees do not always agree on the conditions and situations that exist in the workplace; that is, they may have incongruent perceptions of the work environment (Loeb et al., 2022) or the implementation of an intervention (Tafvelin et al., 2019). These differences have been shown to affect both employee and organizational outcomes (Hasson et al., 2016). For this reason, the inclusion of other stakeholders and consideration of their knowledge and perceptions may be crucial to achieve a better intervention fit. In the North European context, two institutionalized roles contribute to filling this particular need: locally elected shop stewards (i.e., employees elected by union-affiliated workers to represent them in dealings with management) and working environment representatives (i.e., persons elected by all colleagues as stipulated in occupational health and safety regulations). In the Nordic context, employee interests are often collectively represented in the workplace through one or both of these representatives (Hasle et al., 2019; Uhrenholdt Madsen et al., 2019). They function as main communication channels for exchanging information and consultation between management and employees, which enables them to develop a solid, comprehensive understanding of work processes and the working environment. Therefore, they may assist in translating employee needs into a "management-friendly" language and in translating management intentions and intervention goals into an "employee-friendly" language (Frick, 2013). Given the dynamic and participatory design of OOHIs, employee representatives' understanding of the context and their ability to engage employees in the co-creation and implementation of such interventions may thus be crucial for achieving intervention fit. Additionally, their role requires them to have a comprehensive view of what is going on in the organization; therefore, their perceptions—compared to those of other stakeholders—may best predict the implementation outcomes, including intervention appropriateness.

A related argument for the social dynamics underpinning intervention fit comes from the organizational literature, where the concept of isomorphism has played a prominent role in explaining organizational development (DiMaggio & Powell, 1983). When organizations look

for inspiration for development, they often mimic what they perceive as good practices from comparable organizations. Knowledge exchange across organizations has been highlighted as vital to ensuring the development of learning capabilities (Christensen et al., 2019). Such peer-to-peer learning through the exchange of knowledge related to effective practices has been orchestrated through networking activities at seminars or workplace visits (Kramer & Cole, 2016). Combined data from a recent integrative review and focus group interviews supported this claim about the importance of creating learning communities for innovation uptake (Kroon et al., 2022). This inspiration and learning mechanism has also been used in occupational health interventions (Bramming et al., 2009). Such peer learning can increase intervention fit for several reasons (Christensen et al., 2019): first, when company change agents learn about new effective practices, they can choose the approaches they find most suitable for their organization; second, they may learn about practices in similarly structured organizations that have succeeded in adapting a useful principle or approach; and third, they may learn about adjustments they can make to facilitate implementation (Kramer et al., 2009). Supporting these points, a recent systematic review found that learning structures coupled with effective governance structures help to adapt and implement interventions (Daniels et al., 2021).

Overall, while several factors have been shown to affect employees' perceptions of an intervention's fit, the ways in which these factors interact to explain the success or failure of an intervention or to explain the successful generation of implementation outcomes crucial for the success of the intervention remain under-researched.

WHAT MAY HAMPER INTERVENTION FIT?

While intervention research has systematically assessed the implementation factors important for success, studies that focus on the systematic evaluation of factors that may impede the success of OOHIs are scarce (Karanika-Murray & Biron, 2015). Karanika-Murray and Biron (2015) stressed that we can "learn from failure as much as we learn from success. In academic research, the derailed stories rarely get to be told" (p. 276). Publication bias is one reason for this, but another reason is that many intervention projects focus heavily on showing effects, while paying less attention to documenting implementation factors. An extensive review of occupational health psychology interventions led to a call for greater diversity in evaluation methods (Burgess et al., 2020).

Reviews of OOHIs show that many such interventions are inconclusive (Aust et al., 2023; Fox et al., 2021). However, it is difficult to determine why this is the case when the main focus of the research has been effect evaluation. If the results of OOHIs are inconclusive and if systematic process evaluation data have not been gathered, conclusions about reasons for failure will be limited to post-hoc rationalizations. Therefore, many discussions about failure rely on conclusions drawn in hindsight based on unsystematic observations of common characteristics such as the usual suspects, for example, lack of management support and unrelated changes.

Moreover, intervention failure is often attributed to a poor fit with the organizational or external context of the intervention or to the inability to manage co-occurring changes in context, such as restructuring, downsizing, or reorganization (Landsbergis & Vivona-Vaughan, 1995; Nielsen et al., 2010). Few attempts have been made to better understand which process or context factors may hinder the success of an intervention. Drawing on a broad range of cases on the failure of OOHIs for stress and well-being, Cooper (2015)

summarized important process factors that were lacking, including suitability of the intervention, agreement on goals, senior management buy-in, stakeholder involvement, and presence of a project champion. Each of these factors may hamper intervention fit and could be the result of lack of proper problem understanding, poor dialog between management and employee representatives, inadequate involvement of employees, externally generated changes, and more (Randall & Nielsen, 2012). Until now, methods have been inadequate to systematically analyze how configurations of process variable values may determine negative outcomes for specific interventions.

To summarize, we investigated the following research questions.

1. What context and process factors or combinations thereof lead to high intervention fit?
2. What are alternative paths to achieve high intervention fit?
3. Are different process and context factors responsible for causing high intervention fit compared to those that cause low intervention fit?

METHODS

The intervention

A sizable Danish municipality conducted a large, participatory, OOHI project in 64 preschools from 2011 to 2013 with support from a foundation grant (€1.5 million) to improve employee health and safety. A research project entitled the *X-project* was invited to scientifically evaluate the interventions, for which it received grant funding (€0.5 million). The interventions lasted 2 years from initial workshops in the second half of 2011 (Time 1) to feedback workshops in 2013 (Time 2). With a focus on improving the core task activities, such as management, pedagogics, and meetings, the intended long-term outcome was to improve occupational health and safety (OHS) and to reduce absences because of illness.

Intervention–organization fit was a principal component of the program logic—that is, that the participatory intervention was tailored to the current needs of the work units. The participatory setup, along with the focus on integrating intervention activities with core task activities, was purposely designed to make the intervention relevant to management and employees alike in each work unit. In addition, the overall project design was tailored to fit the municipal structure and procedures, such as the organizational structure, management hierarchy, communication channels, and social partnerships. Therefore, intervention fit was a central implementation measure in the project.

To achieve the intermediary outcome of intervention fit, the project combined several implementation components: (1) an implementation team typically composed of the manager, the shop steward, and the work environment representative (TRIO); (2) five educational seminars with consultants and other TRIOs to support the implementation team; (3) implementation support from an OHS consultant at the workplace level; (4) the requirement to create and implement at least one self-defined, tailored OHS initiative; (5) the requirement to conduct one workplace seminar for all relevant employees with support from an OHS consultant; and (6) economic compensation for additional hours spent on development activities.

Two OHS consultants from an internal consulting service of the municipality conducted the five inspirational seminars for all 64 implementation teams. Each seminar involved approximately eight workplaces and roughly 24 participants and was repeated, in general, eight times.

The first seminars were organized according to geographic placement, and subsequent seminars were organized according to interests and capabilities. Eight OHS consultants from an external consulting company supported the implementation team and workplace activities. All intervention activities focused on increasing the OHS capabilities of the implementation team.

The inspirational seminars focused on the following: (1) problem exploration and inspiration for workplace initiatives to improve OHS; (2) implementation inspiration and planning and detailing of scheduled workplace initiatives, such as goal illustration; (3) follow-up on implementation and inspiration from domain experts (e.g., social capital and sickness absence work culture); (4) follow-up on implementation and inspiration on how to self-evaluate; and (5) presentation of results and learning from activities. The seminars were conducted every 6 months. Learning and the exchange of experiences between workplaces was an integral element in the seminars. Between seminars, the workplaces engaged in developing, implementing, and evaluating the scheduled OHS initiatives (a minimum of five scheduled local activities) with support from the external OHS consultant and, in some especially difficult cases, with additional support from municipal OHS consultants. The project registered 151 local initiatives of which about 100 were fully completed. Examples are improved work-related communication, better meetings, more time for planning and reflection, enhanced room use, and improved sickness absence handling procedures.

Participants

Questionnaires about working conditions and well-being were administered to all employees at each of the workplaces at the start-up time point in 2011 (Time 1) and at the follow-up time point in 2013 (Time 2). The TRIOs oversaw distribution, collection, and reminder notifications related to this paper-based survey. The follow-up questionnaire included questions about implementation-related factors, such as management support, intervention fit, and involvement of employees, among others. In our analysis, we only used data pertaining to one question about intervention fit operationalized as employee perceptions of the relevance of intervention activities for their workplace. At follow-up, 1371 employees answered the questionnaire. The response rate was 76% across all participating institutions. In both rounds, the respondents' mean age was 37 years, and 81% of the respondents were women.

The questionnaires about process factors were administered to the implementation teams at each workplace five times during the intervention. The TRIO questionnaires were emailed to each member of the implementation team at each workplace every quarter, typically to three respondents. Following intensive reminders by mail and phone, the response rates were 95% for managers, 76% for shop stewards, and 71% for work environment representatives. This means that information from some TRIO members at some time points was missing for some workplaces (Table 1).

Measures

As part of the project, data were collected on sickness absence and employment data (from registers), employee well-being and psychosocial conditions (employee surveys and interviews), organizational data (archival data and logbooks), and implementation process factors (employee follow-up survey, TRIO and consultant surveys, and logbooks).

TABLE 1 Number of respondents from the TRIO at each time point of the TRIO survey (Q1–Q5).

	Quarter (Q)				
Respondents	**1**	**2**	**3**	**4**	**5**
Manager	61	58	57	54	55
Shop steward	49	49	42	46	47
Work environment representative	51	43	44	41	39

As an outcome, we selected intervention fit, which was an employee-rated item collected at the end of the intervention. To select process factors, we employed an exploratory approach and included 14 TRIO-rated items about the process from all five rounds (see TRIO surveys in Figure 1). We used the individual ratings from each TRIO member to explore whether one of these raters' perceptions was more indicative for the outcome. In addition, we included four context factors that we hypothesized could influence the outcome such as size and type of institution. Table 2 outlines measures, data sources, and measurement time points.

Implementation outcome

Intervention fit was operationalized as employee perceptions of the relevance of intervention activities to their workplace. This *relevance* (REL) was measured with a single item in the employee questionnaire at Time 2: "To what degree have the activities in the project been relevant for your workplace?" Responses were based on the following five-point Likert response scale: "*a very low degree*," "*a low degree*," "*partly*," "*a high degree*," and "*a very high degree*." Organizational level of intervention fit was operationalized as the proportion of employees (between 0% and 100%) in the unit who rated the intervention relevant to a "*high*" or "*very high*" degree. We used responses from all employees.

Process factors

In addition, we included 14 process factors in the analyses. Each factor was measured five times, except four factors that were only measured four times because they were not relevant in the first round. The variable names were modified as follows. A prefix indicated the specific round (Q1...Q5). At each round, the factors were rated by each member of the TRIO, and the variables were given the following prefixes: pedagogical leader (L), shop steward (S), and work environment representative (W). Each variable was rated using the following five-point Likert response scale: "*very large extent*," "*large extent*," "*somewhat*," "*small extent*," and "*very small extent*." The response "do not know" was coded as missing.

The respondents were asked to answer questions using the most recent 3 months as their frame of reference. The measures were as follows:

Leader support

Two items were used to assess support: "Your closest supervisor has been positive toward the project" (LPOS) and "Your closest supervisor has supported the project" (LSUP).

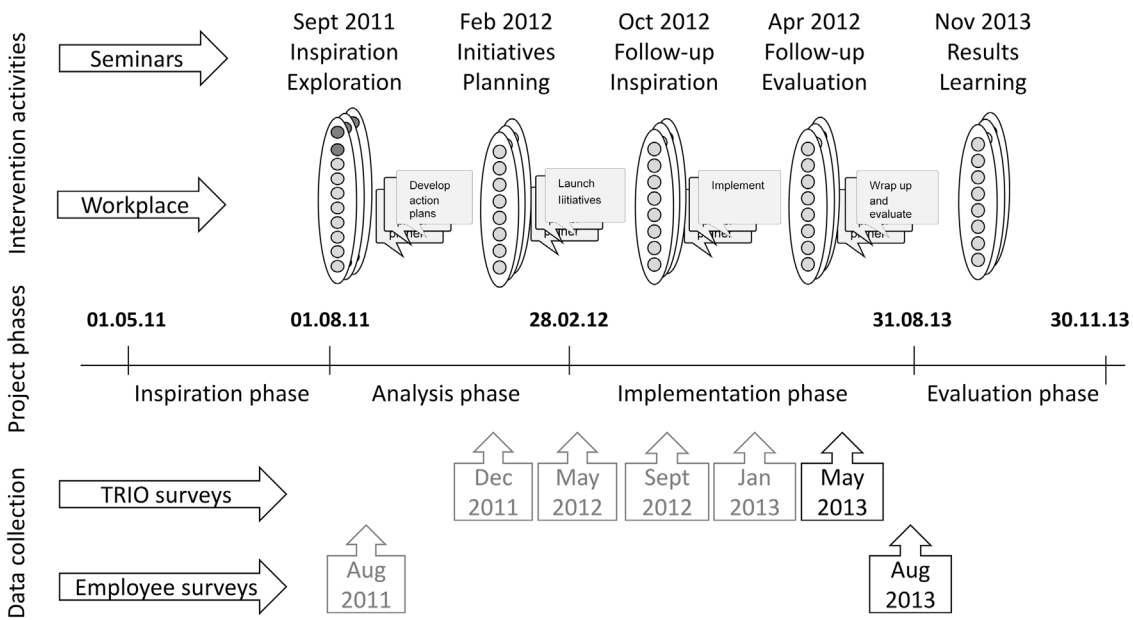

FIGURE 1 Intervention activities and data collection points in the X-project.

TABLE 2 Overview of measures, data sources, and measurement time points.

Variables	Data source	Time point
Intervention fit	One item in employee follow-up survey	End of intervention, after the fourth seminar (August 2013)
Fourteen process factors	Five implementation team member surveys: Pedagogical leaders (L), shop stewards (S), and work environment representatives (W)	Five times across the intervention (Q1–Q5) (November 2011 to May 2013)
Four context factors	Archival data	Throughout the intervention (August 2011 to August 2013)

Consultant support

Two items were used to assess support from consultants: One for external consultants, "You have received guidance and/or support for the project from [external] consultants" (CSUPX), and one for municipal consultants, "You have received guidance and/or support for the project from [internal consultant]" (CSUPM).

Project communication

Communication about the project to the workplaces was handled by the central administrative/human resources (HR) unit in the municipality. Generally, a newsletter was used. In addition, weekly updates from HR to the leaders could be used; for very urgent matters, a direct email was sent. The item used to assess communication was, "There has been sufficient communication regarding the project from administration/HR" (COM).

Effort investment

The degree to which activities were used by the TRIOs on the project was assessed with five questions: "Did the TRIO work on initiatives to develop or implement change in the X-project?" (DEV), "Has the TRIO had sufficient time to work with the X-project?" (TIME), "Has the TRIO had sufficient resources to work with the X-project?" (RES), "Did the TRIO put great effort into the X-project? (EFRT), and "Did you involve staff members in the X-project?" (INVL). Finally, the respondents were asked to reply to the following question using an integer value: "At how many meetings did you discuss the X-project?"

Capacity

The respondents' assessment of the capacity-building activities of the project was measured by four items: "The TRIO has developed new skills to manage the work environment" (SKILL), "The role distribution in the TRIO/project group is clear" (ROLE), "The tools introduced at the interdisciplinary seminars are useful" (TOOL), and "The TRIO uses the experience exchange from the inter-organizational seminars" (PEEREX). These questions were not asked in round 1.

Context factors

We included four context-related factors. One asked about exogenous changes separate from the project: "Within the past three months, have there been any major organizational or managerial changes unrelated to the X-project that may have influenced the project results?"

(CHANGE). This question was answered by each of the TRIO members in each round. The project was conducted in eight districts of the municipality with different socioeconomic characteristics and an external consultant especially dedicated to the district. Initially, each district had approximately eight workplaces and separate district managers; however, during the project, the number of districts were reduced to five. We defined a variable assigning a number from 1 to 5 representing the district (AREA). The number of employees in each workplace varied from 7 to 39 full-time employees with a mean of 19 employees. We defined a variable to distinguish larger workplaces with 20 or more employees (52%) from smaller workplaces (48%) (SIZE20). Finally, we defined a variable to distinguish between workplaces with children 0–3 years (27%), 3–6 years (6%), and 0–6 years (67%) (TYPE).

Analytical approach

The analytical approach applied in this study involved applying CNA (Whitaker et al., 2020), a relatively new configurational method within the larger family of configurational comparative methods (CCMs). CNA is a case-based, mathematical approach to data analysis that draws on Boolean algebra, logic, and set theory to identify key conditions that uniquely distinguish a group of cases with an outcome of interest from another group without that outcome. Particular strengths of CNA include the following abilities: to model conjuncts (when several conditions must be present together to produce the outcome); to model disjuncts (when multiple pathways lead to the same outcome); to develop positive models (solutions for when the outcome is present) separately from negative models (solutions for when the outcome is absent); and to be applied to samples of different sizes, including small-*n* studies (Dy et al., 2022; Miech et al., 2021; Petrik et al., 2020; Whitaker et al., 2020; Yakovchenko et al., 2020). The analytic aim of configurational analysis is to identify necessary and sufficient conditions for an outcome of interest using the cases within a given dataset. Software used to support this analysis included the R package "cna" for coincidence analysis (build under v.4.1.1), RStudio (v.1.4.1717), R (v. 4.1.0), and Microsoft Excel (Ambühl et al., 2021). Our analysis proceeded with a four-step approach (Figure 2).

The first step in this CNA analysis was calibration. All process and context measures (apart from the "presence of a concurrent change" where responses were either "yes" or "no") used in our dataset had a Likert-scale response scale from 1 to 5, and thus, we have used the multi-value set to retain the original meaning of these values, where higher values represented presence of a factor to a higher extent. Multi-value sets are frequently chosen when variables represent scales or items (e.g., Sperber et al., 2022; Wasmuth et al., 2022). Thus, for the "predictor" factors, no calibration was initially necessary. The CNA analysis required our outcome variable to be expressed as categorical values. In the analyses, we dichotomized the outcome: the intervention was considered relevant if 50% or more (≥.50) of the employees in each workplace rated it relevant to a "high" or "very high" degree. Thus, a new dichotomized factor was created from the relevance outcome and coded as "1" when relevance scores were equal to or above

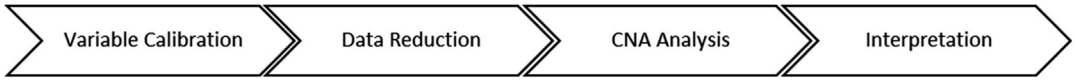

FIGURE 2 Four-step approach used in the analysis.

50%, and "0" when scores fell below 50%. This calibration was based on three main considerations. First, values above/below 50% are commonly considered majority/minority in lay perceptions. Second, in continuous fuzzy-set calibration (between 0 and 1), the threshold of 0.50 is considered a point of maximum membership ambiguity (Baumgartner & Thiem, 2015). Third, the visual inspection of the distribution additionally supported this decision with substantial gap around the value of 50%, allowing to create cases with high versus low relevance in a way that the distribution was not skewed.

The second step in the CNA analysis was to reduce our data. We did this by conducting an exploratory data analysis on the entire dataset to inform the selection of a smaller subset of candidate factors to use in subsequent model development. There were no compelling a priori reasons to select certain factors over others for inclusion in model development, as each factor had a plausible connection to the outcome and hence was included in the original dataset. CNA offers an approach to factor selection that is inductive, bottom-up and data-informed rather than deductive, top-down, and entirely theoretical (Yakovchenko et al., 2020). Specifically, we applied the "minimally sufficient conditions" (i.e., "msc") function within the R package "cna" to look across all 61 cases and all process and context factors (with process factors assessed by three rates across all five time points) in the original dataset at once to identify redundancy-free configurations of specific conditions with especially strong connections to the outcome of interest. In total, this analysis included 232 variables. This exhaustive process considered every possible one-, two- and three-condition configuration instantiated in the dataset, assessed each configuration against a prespecified consistency threshold, and retained configurations that meet the consistency threshold. The routine next organized this Boolean output in a "condition table," where rows represent individual configurations and columns list values for outcome, conditions, consistency, coverage, and complexity. During this exploratory data analysis, the msc function was run multiple times at different consistency levels (95%, 90%, 85%, 80%, and 75%) in order to compare output at different thresholds (Rich et al., 2022). We next consulted this condition table to identify a small number of "best of class" configurations that met all of the following criteria: top coverage score within configurations of identical length (i.e., the "complexity level"); the presence of a sizable difference in coverage scores between the top-scoring configuration and its next-nearest neighbor within the same complexity level; aligned with logic, theory, and prior knowledge; and relevant to our research question. We then gathered together the factors represented by these best-of-class configurations as the subset of candidate factors to use in model iteration. Using this bottom-up approach, we inductively analyzed our original dataset in its entirety, drawing upon substantive knowledge when interpreting the mathematical output generated by the routine, and ultimately identified a subset of candidate factors for model development during the next step of the CNA analysis.

During this exploratory phase of the analysis, in addition to factor selection, we further reduced the dimensionality of the selected factors to work within an analytic search space commensurate with our sample size (Miech et al., 2021). We used the mathematical output from the msc function together with the subject matter knowledge of the project team to determine specific value levels at which individual factors linked to the outcome (Miech et al., 2021). This knowledge enabled us to dichotomize factors on a factor-by-factor basis around specific threshold levels. For example, if the msc function output revealed that what mattered for a 5-level factor called "Leader Support" was that it was at level 5 or not a level 5, and this connection to the outcome also made sense theoretically that factor was reduced into a dichotomous factor that indicated either the presence or absence of Leader Support = 5. Thus, all cases when Leadership Support was 5 were coded as 1, whereas all other values (1–4) were coded as 0.

In the third step, we performed the CNA analysis. During model development, the goal was to develop an overall model that met all of the following criteria: ≥ 80% scores for both consistency and coverage; the same factors (taking on different values) explained both the presence and absence of the outcome; alignment with theory, background knowledge, case familiarity and logic; and no model ambiguity. This means that our model needed to explain at least 80% of the cases with the outcome (coverage) and yield the outcome at least 80% of the time, and the solution appeared anywhere in the dataset (consistency) and where there was only one solution (Adams et al., 2022; Baumgartner & Ambühl, 2020; Rich et al., 2022). These thresholds help to ensure the reliability (consistency) and explanatory breadth (coverage) of the final model. At this step, any cases with missing values for any factors used in the preliminary model development were dropped, a standard procedure within configurational analysis that prioritizes important conditions over additional cases.

Data reduction and subsequent model development steps were conducted separately for the presence and absence of the relevance outcome.

RESULTS

During the first exploratory step of the data analysis concerning data reduction step, configurations from the final time point (Q5) exhibited the strongest connection for both the presence and the absence of the relevance outcome. This made empirical sense because intervention fit operationalized as relevance was measured at the completion of the project, while during the three last months of the intervention, the TRIOs conducted participatory evaluating activities focusing on what results the workplace had achieved during implementation of the project.

For the presence of the outcome (i.e., when relevance was equal to or above .50), five candidate factors stood out for their direct connection with relevance and were selected for use in the model development phase. Four of these were process factors that reflected the perspective of the shop steward, whereas the fifth was a context factor. In the model development phase, 24 cases were dropped because values were missing for any of these five candidate factors, yielding an analytic dataset of 37 cases, five explanatory factors, and the outcome. We identified 5 as a difference-making threshold for the factor Leader Support (S_LSUP); a value of 4 or 5 for the factor Role Clarity (S_ROLE); a value of 4 or 5 for the factor Involvement (S_INVL); and a value of 3, 4, or 5 for the factor Peer Exchange (S_PEERX), and reduced these factors accordingly.

For the absence of the outcome (i.e., when relevance was below .50), three candidate factors were selected using the same process as described previously, yielding an analytic dataset of 40 cases, three explanatory factors, and the outcome. The same three factors appeared in both the positive and negative models. Two of these were process factors, and the third was a context factor. For the negative model, we identified values of 1, 2, or 3 as a difference-making threshold for the factor Leader Support (S_LSUP), and values of 1, 2, or 3 for the factor Role Clarity (S_ROLE), and we reduced these factors accordingly.

Positive model: high level of relevance achieved

The CNA analysis only yielded one solution at chosen levels of consistency and coverage (≥ 80%). A model with only two pathways explained a relevance score ≥ .50:

No external change reported at Q5 (S_CHANGE value = 0), combined with the following:

1. S_ LSUP value = 5 (shop stewards perceived leader support as very high)

OR

2. S_ ROLE value ≥ 4 (shop stewards perceived role clarity as high) AND
   S_ INVL value ≥ 4 (shop stewards perceived staff involvement as high) AND
   S_ PEERX value ≥ 3 (shop stewards perceived peer learning as relatively high).

Either one of these two pathways (i.e., combinations of conditions) was sufficient on its own for the outcome. A solution visualization for this model is presented in Figure 3.

This model accounted for 12 of 15 cases with the relevance outcome, so the overall coverage score for the model was 80% (12/15). Likewise, only three cases were inconsistent (cases identified by the model in which the outcome was not present, indicated in green shading in the Figure 3), yielding a consistency score of 80% (12/15).

Negative model: high level of relevance not achieved

Only one model was identified at chosen levels of consistency and coverage for the negative outcome (i.e., where relevance was below .50). This negative model featured three conditions, each consisting of a single factor sufficient by itself to account for the absence of the outcome. These same three factors were also included in the positive model but took on different values in the negative model:

1. S_LSUP value ≤ 3 (shop stewards perceived leader support as low) OR
2. S_ROLE value ≤ 3 (shop stewards perceived role clarity as low) OR
3. S_CHANGE value = 1 (shop stewards reported an external change at Q5).

A solution visualization for the negative outcome model is depicted in Figure 4.

This model accounted for 21 of 25 cases without the relevance outcome (cases indicated in green shading in Figure 4, where cases above the dotted red line lacked the outcome) for an overall coverage score of 84% (21/25). Only three cases were inconsistent (cases identified by the model in which the outcome low relevance was present, indicated in green shading in Figure 4), yielding a consistency score of 87.5% (21/24). This shows that the model fit was excellent, even better than for the positive model.

DISCUSSION

In this paper, we reanalyzed data from an OOHI conducted in Danish preschools to investigate conditions (i.e., context and process factors) that are linked with intervention–organization fit. We focused on intervention fit because it was the focal implementation outcome of this intervention, which was designed to match the context and the needs of each distinct work unit. We operationalized intervention–organization fit as employee perceptions of the relevance of the intervention activities for their workplace. Our aim was to uncover (1) which combinations of

	ID	REL≥ .50	S_LSUP=5	S_CHANGE	S_ROLE≥4	S_INVL≥4	S_PEERX≥3
1	35	1	1	0	1	1	0
2	25	1	1	0	1	0	1
3	13	1	1	0	1	0	1
4	19	1	1	0	1	0	1
5	54	1	1	0	1	1	1
6	30	1	1	0	1	1	1
7	40	1	1	0	1	1	1
8	36	1	1	0	1	1	1
9	33	1	0	0	1	1	1
10	28	1	0	0	1	1	1
11	15	1	0	0	1	1	1
12	23	1	0	0	1	1	1
13	16	1	0	1	1	1	1
14	3	1	0	0	0	0	1
15	46	1	0	0	0	0	0
16	51	0	1	1	1	1	1
17	9	0	1	0	0	1	1
18	27	0	1	0	1	1	1
19	57	0	0	0	1	1	1
20	32	0	1	1	1	0	1
21	56	0	0	0	1	1	0
22	10	0	0	0	1	1	0
23	61	0	0	1	1	1	1
24	41	0	0	1	0	1	1
25	17	0	0	1	1	0	1
26	55	0	0	0	1	0	1
27	24	0	0	1	1	0	1
28	52	0	0	0	0	0	1
29	49	0	0	0	0	0	1
30	48	0	0	0	1	0	1
31	42	0	0	1	1	0	1
32	34	0	0	0	1	0	0
33	21	0	0	0	0	0	1
34	5	0	0	1	1	0	1
35	20	0	0	0	1	0	0
36	53	0	0	1	0	0	1
37	59	0	0	0	0	0	1

FIGURE 3 Legend on next page.

FIGURE 3 Solution visualization for positive outcome (relevance [REL] ≥ .50). *Note*: The green color indicates cases covered by at least one of the two pathways in the model and in which the outcome was present. The blue color indicates inconsistent cases that were identified by the model but in which the outcome was not present. The red line divides cases with the outcome present (above the red line) from those without (below the red line).

context and process factors were linked with perceptions of high levels of intervention fit among the staff, (2) alternative ways to obtain high levels of employee perceived intervention fit are, and (3) whether factors that explained high levels of employee perceived intervention fit were the same as those that explained low levels of employee perceived intervention fit.

Using CNA, an innovative analytical approach that allows for addressing and modeling complexity in real-world organizational contexts, we identified two "paths" to achieve high levels of employee perceived intervention fit. For both paths in the positive model, one contextual condition—lack of co-occurring exogenous changes in the organization—was a necessary condition for perceptions of high levels of intervention–organization fit. However, the lack of co-occurring changes alone was insufficient to explain employee perceived intervention fit. In the first pathway, the lack of co-occurring changes had to be combined with very high levels of leader support (5 out of 5 rating) for the intervention. In the second pathway, the lack of co-occurring changes had to coincide with the presence of a combination of three process factors: a high rating of role clarity in the implementation team (i.e., TRIO consisting of a unit manager, a work environment representative, and a shop steward), a moderate to high rating of the experience exchange from the inter-organizational seminars with other implementation teams, and a high rating relative to the implementation team's involvement of staff in the project activities.

Our results also showed that three "paths" existed to employee perceptions of low levels of intervention–organization fit (i.e., lack of the focal implementation outcome). Importantly, each "path" consisted of a single condition that was sufficient by itself to account for the outcome's absence. This means that the sole presence of this factor was enough to lead to a failure in achieving intervention fit in the eyes of the employees. Our findings showed that whenever leader support was perceived as low (3 or lower on a 1–5 scale), or the implementation teams' role clarity was low (3 or lower on a 1–5 scale), or when organizational changes unrelated to the intervention occurred, employees perceived the fit of the intervention activities for the workplace as low.

Overall, these findings highlighted two paths to realizing employees' perceptions of high levels of intervention–organization fit, and both paths involved combinations of context and process conditions. No sole condition was sufficient to produce success in implementation relevance (i.e., at least 50% of the respondents reporting intervention relevance as high). Conversely, failure occurred as a result of single factors, and three alternatives were identified. The results, therefore, indicate that success required more complex combinations of factors, while failure could follow three alternative, single conditions. Importantly, the process variables were obtained from three members of the implementation team—the TRIO—that had differing roles (a manager, a work environment representative, and a shop steward), and the analysis showed that the perceptions of shop stewards in round five had the strongest relation to the employees' high perceptions of the fit of the intervention. In the Nordic context, the role of the work environment representative traditionally has been to help secure the adherence to OHS regulatory requirements, whereas the shop steward has been tasked with facilitating workers' cooperation

	ID	REL≥ .50	S_LSUP≤3	S_ROLE≤3	S_CHANGE
1	20	0	1	0	0
2	34	0	1	0	0
3	57	0	1	0	0
4	48	0	1	0	0
5	29	0	1	0	1
6	42	0	1	0	1
7	5	0	1	0	1
8	38	0	1	1	1
9	6	0	1	1	1
10	53	0	1	1	1
11	21	0	1	1	0
12	59	0	1	1	0
13	9	0	0	1	0
14	52	0	0	1	0
15	49	0	0	1	0
16	41	0	0	1	1
17	17	0	0	0	1
18	24	0	0	0	1
19	61	0	0	0	1
20	51	0	0	0	1
21	32	0	0	0	1
22	55	0	0	0	0
23	56	0	0	0	0
24	10	0	0	0	0
25	27	0	0	0	0
26	46	1	1	1	0
27	3	1	0	1	0
28	16	1	0	0	1
29	15	1	0	0	0
30	23	1	0	0	0
31	28	1	0	0	0
32	33	1	0	0	0
33	30	1	0	0	0
34	35	1	0	0	0
35	36	1	0	0	0
36	40	1	0	0	0
37	54	1	0	0	0
38	13	1	0	0	0
39	19	1	0	0	0
40	25	1	0	0	0

FIGURE 4 Solution visualization for negative outcome (relevance (REL) < .50). *Note*: The green color indicates cases covered by at least one of the two pathways in the model and in which the outcome was present. The blue color indicates inconsistent cases identified by the model in which the outcome was not present. The red line divides cases with the outcome present (above the red line) from those without (below the red line).

with management (Hasle et al., 2019). Shop stewards, thus, typically take a more critical-cooperative position towards managements' handling of organizational changes on behalf of their constituents, which may explain why their assessment had stronger associations with employees' perceptions of intervention fit, because fit is closely related to the relevance and perceived appropriateness of the intervention. Next, we expand on the theoretical and practical contributions of these findings.

Contributions to theory

This study makes an important theoretical contribution to the emerging body of research on process and context factors and their impact on intervention outcomes. This contribution is twofold. First, we studied specific combinations of conditions that were needed for intervention–organization fit to be perceived as high among employees. Second, we contribute with our analyses of the conditions that led to low levels of perceived fit among employees. This contribution to the emerging body of research that helps to understand what process and context factors impact intervention outcomes is unique. Instead of solely focusing on positive outcomes, we also revealed what can cause failed intervention results. We theorized that both process and context factors would contribute to both high and low levels of perceived fit, which also was confirmed by our findings. The implication of the finding for theory is that specific configurations of context and process factors were most important. Furthermore, we also found that certain factors could have multiple functions: those that *make* an intervention can also *break* the intervention. Co-occurring changes in the organization, how a leader supported the intervention, and how the implementation team perceived their role were all factors that impacted the high and low levels of perceived intervention–organization fit. The conditions for the outcome, however, differed, which is our main finding: several factors were needed to obtain high levels of perceived fit from employees, while one single factor could lead to low ratings. Thus, as paths to perceived fit were more complex than paths to a lack thereof, an organizational-level intervention is more likely to run into context and process factors that impede the success of the intervention, which may explain why organizational interventions have a lower success rate than individual-level interventions.

The results support the conclusions drawn in studies on derailed interventions (Karanika-Murray & Biron, 2015), but they also provide nuance to those conclusions because not only do we collate evidence about the importance of specific factors deducted in hindsight from various types of interventions but the present study also draws conclusions from prospectively measured factors from the same intervention. Therefore, it is particularly interesting that the results indicate that a single process or context factor alone may "break" the intervention and prevent an important implementation outcome, such as perceived intervention fit, which previously has been shown to explain the achieved desired outcome of the intervention as such (Lundmark et al., 2018).

We also make a methodological contribution to the research of work and organizational psychology and occupational health psychology by illustrating how CNA can be used to evaluate OOHIs. The capacity of CNA to uncover conditions that directly lead to success and failure offers opportunities to study the complexity of organizations when implementing an occupational health intervention. As the findings illustrate, CNA can identify key conditions that alone (e.g., co-occurring changes) are sufficient to produce low perceptions of fit, but it can also identify whether other conditions are also necessary for certain outcomes (e.g., absence of

co-occurring changes and leader support for high fit). In addition, we separately analyzed pathways leading to success and failure, which is seldom performed in intervention evaluations (Karanika-Murray & Biron, 2015).

The analysis was limited by the factors collected; a broader spectrum of factors may have revealed more configurations leading to fit or lack of fit. This is also a limitation of the intervention methodology, in general, that prospective studies must identify relevant factors prior to the intervention to measure during the intervention. Deductive approaches to identifying relevant factors are recommended, in particular, to test and develop theory. However, deductive approaches do not allow for surprises, so explorative approaches are needed to capture what cannot be predicted. The surprising finding from this study was that intervention fit required a combination of factors, whereas failure needed only one factor. The general perception of factors in interventions has been one of symmetrical causation: in other words, more of a good thing, such as leadership support, is better. However, here we find that lack of leadership support can be substituted by a combination of factors. This highlights that our theoretical understanding is far from sufficient, and exploration is needed to advance theory. Nevertheless, CNA and the approach demonstrated in this paper contribute to the methodological underpinnings of identifying relevant factors.

Practical implications

Our study demonstrates the value of the implementation team to secure intervention fit. Hence, practitioners must carefully form implementation teams who know work practices and the work environment well and understand their roles in relation to each other, such as in relation to interest representation. In this study, particularly the shop stewards' perceptions were predictive of a better fit to the context.

Another key player in relation to implementation is the middle manager. Our study finds support for the importance of managers to this process and also provides nuance to the proposition that active support from managers is essential for high levels of perceived fit of the intervention to the organization. The more specific assessment we provide is that an active manager can, indeed, be an asset for implementation because the manager's role helps set direction, prioritize resources, arrange, coordinate activities, and more. In contrast, a less active manager does not necessarily lead to failure, but the role of other process factors (such as involvement, role clarity of the other members of the implementation team, and inter-organizational collaboration of the implementation team) becomes important for creating perceptions of intervention fit. Thus, the practical implication for managing OOHIs is that managers who are unable to actively support an intervention themselves should strive to create the right conditions for the intervention to succeed without their support.

Although the Nordic model of employee representation is closely connected to the Nordic work organization model, it exemplifies a more generally applicable implementation principle of bridging the knowledge and interests of multiple stakeholders (Guerin et al., 2022). The results lend support to the idea that implementation teams benefit from including actors who can liaise between both management's and workers' interests and who hold a broad palette of knowledge about the intervention in relation to the daily work activities. In this study, these competencies were most strongly represented by the shop stewards.

In this project, the use of inter-organizational learning from positive experiences from other workplaces was a contributing factor to perceived fit. This was possible because the sector

(municipal) in this study was not competitive (Van Eerd, 2019). It was likely also facilitated by the national context—a Nordic country with a high general level of trust (Delhey & Newton, 2005). Thus, the possibilities for using a similar mechanism in other intervention projects may be restricted by the degree of competitiveness within the nation, sector, or workplace. The results of this analysis are in line with findings in the literature about the adoption of practices and the potential of peer learning related to workplace practices (Proctor et al., 2011). In the occupational health context, such learning occurs naturally in professional networks and at conferences (Jensen et al., 2020). Our results indicate that such mechanisms may strengthen the perception of relevance and organizational fit of interventions and, thus, the likelihood of achieving the intended outcomes of the interventions, but only if they are applied in a participatory setting where some actors have bridge-building roles.

While the intervention activities may have been perceived as relevant in the earlier phases in the intervention, our findings suggest that an external change in the final part of the intervention influenced employees' perceptions of relevance. Qualitative knowledge about this intervention project indicates that this may be the case when workplaces experience a change in management or when new and unrelated change agendas are introduced from the central administration, such as a new organization-wide initiative focusing on new pedagogical practices that was introduced late in the intervention period. Such external, unrelated changes are almost inevitable in interventions with long follow-up periods, and the best precaution may be to leave some leeway for intervention adaptation in the intervention design. An example of such elasticity can be found in the study by Abildgaard et al. (2018) in which participants in a participatory OOHI experienced major organizational change and decided, to some extent successfully, to focus the intervention on managing the changes. Though such adaptive practices are possible, we should emphasize that a key practical implication from our study is that concurrent change during the anchoring phase of an intervention is sufficient to produce a detrimental effect on the implementation.

Limitations

While the current paper presents a comprehensive analysis of process and context factors spanning an OOHI with over 40 participating workplaces, there are still a number of limitations that need to be considered. In selecting factors, we conducted an exploratory data analysis using an established routine within CNA to reduce dimensionality; other researchers may have used different strategies, such as choosing factors based on theoretical considerations alone. Another limitation is that missing data restricted the number of cases that we could include at each time point. Imputation or aggregation would have been ways to retain cases, but that would require an assumption that the assessments of the TRIO member in different roles could be treated equally. Had we chosen this approach, we would have lost important information about the relative importance of each TRIO-member rating. In addition, we would have compared workplaces with different combinations of raters. We, therefore, decided that the loss of cases with less information was preferable. Whereas aggregation across TRIO-member responses might have retained some cases in the dataset, it would have been at the expense of valuable information from and about specific raters.

Another potential limitation is that we used single items in our analyses. This could be considered problematic, as only one item might not capture the full richness of the underlying theoretical constructs, leading to low content validity. Single items might also result in fewer

points of discrimination (sensitivity), especially with only 5-point response scales. However, we deemed the constructs in our analysis to be sufficiently narrow, unambiguous, and concrete to warrant using a single item measure. Additionally, a recent paper by Matthews et al. (2022) shows that single-item measures are good alternative to multi-item measure, especially when respondents are asked to rate multiple phenomena, as is the case with evaluation studies.

Finally, our analysis identified difference-making bundles that consistently distinguished between cases that had the outcome of interest form those that did not. These models, together with our knowledge of the field, provide new and valuable insights into how certain conditions worked together in practice to yield outcomes of interest. As this analysis drew upon observational data, however, any ascriptions about the strength and direction of causal relationships would require additional confirmation, such as independent verification in prior studies, replication studies, or randomized trials.

Conclusions

While the complexity of managing OOHIs has been underlined in the literature for years (Damschroder et al., 2009; Glasgow et al., 1999; von Thiele Schwarz et al., 2021; Sanz Vergel & Nielsen, 2021), to the best of our knowledge this study is among the first to explicitly embrace this complexity and pinpoint difference-making conditions. A novel finding made by CNA is the identification of the factors needed for positive and negative outcomes. As explained in the results section, more paths exist to achieving a perceived lack of fit, and these paths are simple: they each consist of a single factor that can be referred to as "a kiss of death." On the other hand, the paths to high levels of perceived fit by staff are fewer and more complex, as they consist of combinations of conditions rather than single factors. This is an important theoretical contribution because it lends empirical support to the intuition that multiple simple ways exist to cause an intervention to fail, whereas the paths to success are more complex and rely on the presence of a combination of contextual and process conditions.

CONFLICT OF INTEREST STATEMENT

Authors report no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

Before the project was initiated, Ole Henning Sørensen applied for ethical approval to the National Committee on Health Research Ethics (National Videnskabsetisk Komité) in Denmark and received decision that according to Danish law, studies using solely questionnaire and register data do not require ethical approval.

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