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Testing Middle Range Theories in Realist Evaluation: A Case of a Participatory Organisational Intervention

Abstract

Purpose - Realist evaluation seeks to answer the question of ‘what works for whom in which circumstances?’ through developing and testing Middle Range Theories (MRTs). MRTs are programme theories that outline how certain mechanisms of an intervention work in a specific context to bring about certain outcomes. In this paper, we tested an initial MRT about the mechanism of participation. We used evidence from a participatory organisational intervention in five worksites of a large multi-national organisation in the US food service industry.

Design/methodology/approach - Qualitative data from 89 process tracking documents and 24 post-intervention, semi-structured interviews with intervention stakeholders were analysed using template analysis.

Findings – The operationalised mechanism was partial worksite managers’ engagement with the research team. Six contextual factors (e.g., high workload) impaired participation, and one contextual factor (i.e., existing participatory practices) facilitated participation. Worksite managers’ participation resulted in limited improvement in their awareness of how working conditions can impact on their employees’ safety, health, and wellbeing. Based on these findings, we modified the initial MRT into an empirical MRT.

Originality/value – This paper contributes to the understanding of ‘what works for whom in which circumstances’ regarding participation in organisational interventions.

Keywords Realist evaluation, Organisational interventions, Food service, Work environment, Occupational health

Paper type Research paper

Introduction

From an occupational health perspective, participatory organisational interventions can be defined as ‘planned, behavioural, theory-based actions that aim to improve employees’ health and wellbeing through changing the way work is designed, organised, and managed’ (Nielsen, 2013, p. 1030). These interventions are the recommended approach for improving psychosocial working conditions and employees’ health and wellbeing (EU-OSHA, 2016; ILO, 2001). However, the evaluation of participatory organisational interventions is challenging (Fox *et al.*, 2021; Roodbari, Axtell, *et al.*, 2021). First, participatory organisational interventions work through different emergent process mechanisms (e.g., the process of action planning) and content mechanisms (e.g., the content of action plans) (Nielsen and Miraglia, 2017). Second, participatory organisational interventions are implemented in dynamic, complex organisational contexts where various contextual factors facilitate or impair the operation of intervention mechanisms (Nielsen and Randall, 2013). Realist evaluation is considered a promising approach to evaluate complex participatory organisational interventions (Nielsen and Miraglia, 2017).

Over the last decades, different evaluation waves have become dominant: science-driven, dialogue-oriented, neo-liberal, evidence (Vedung, 2010), and collaborative and citizen-focused (Krogstrup and Mortensen, 2021). In organisational intervention research, the Randomised Control Trial (RCT) has been considered the gold standard (Nielsen and Miraglia, 2017). However, recently, Nielsen and Miraglia (2017) argued for a need to move beyond the RCT question of ‘what works?’ to the realist evaluation question of ‘what works for whom in which circumstances?’. Realist evaluation suggests that evaluators and intervention participants should engage in an ‘assisted sense-making relationship’ and interact collaboratively to evaluate interventions (Pawson and Tilley, 2004). As such, realist evaluation is situated in the collaborative and citizen-focused wave.

Recent reviews show that participatory organisational interventions have been effective in improving employees' health and wellbeing (Fox *et al.*, 2021; Roodbari, Axtell, *et al.*, 2021). Participatory organisational interventions are advantageous as they: (1) allow targeting the right working condition problems at source (Busch *et al.*, 2017; Schelvis *et al.*, 2016), (2) allow tailoring the intervention to fit the organisational contexts and individuals within the organisation (Abildgaard *et al.*, 2020), and (3) trigger co-learning processes which empower middle managers and employees to solve the working condition problems (Nielsen and Randall, 2012). These interventions improve employees' feeling of intervention ownership, psychosocial risk management, perceived autonomy, perceived social support, and health and wellbeing (Abildgaard *et al.*, 2020; Busch *et al.*, 2017; Nielsen and Randall, 2012; Tafvelin *et al.*, 2019; von Thiele Schwarz *et al.*, 2017). On the other hand, the two disadvantages of participatory organisational interventions are: (1) their outcomes are highly context-specific as the development and implementation of intervention activities are determined by managers and employees in a specific workplace (Abildgaard *et al.*, 2020; Nielsen *et al.*, 2006) and (2) their outcomes are notoriously difficult to measure (Holman and Axtell, 2016). To address these issues, it has been suggested to focus on proximal outcomes rather than distal outcomes of these interventions (von Thiele Schwarz *et al.*, 2017) and to explore the links between these interventions' processes and outcomes, for instance by using realist evaluation (Nielsen and Miraglia, 2017).

Realist evaluation seeks to answer the question of 'what works for whom in which circumstances?'. To answer this question, realist evaluation studies (1) the underlying Mechanisms of an intervention (what makes the intervention work?), (2) the Contexts under which the mechanisms operate (what are the conditions that influence the operation of these mechanisms?), and (3) the patterns of Outcomes produced (what are the observed patterns of outcomes?). These form Context-Mechanism-Outcome (CMO) configurations (where

Context + Mechanisms = Outcomes) (Pawson and Tilley, 1997). Realist evaluation follows a cycle that contains four steps. First, initial Middle Range Theories (MRTs) are developed. MRTs are programme theories based on CMO configurations that outline how certain mechanisms of an intervention work in a specific context to produce particular outcomes. Second, interventions are designed and implemented based on the initial MRTs and empirical data are collected to test these MRTs. Third, the empirical data are analysed and synthesised to develop empirical MRTs. Fourth, initial MRTs are tested against empirical MRTs, it means, it is explored if CMOs of the empirical MRTs are the same or different from the CMOs of the initial MRTs (Pawson and Tilley, 2004; Roodbari, Nielsen and Axtell, 2021). The purpose of this paper is to perform the second, third, and fourth steps of a realist evaluation cycle in a participatory organisational intervention in a large multi-national organisation in the US food service industry.

The current literature shows that a few organisational intervention studies have employed realist evaluation (for example, Abildgaard *et al.*, 2020; Busch *et al.*, 2017; Nielsen *et al.*, 2014; von Thiele Schwarz *et al.*, 2017). As such, we only know a little about how to apply realist evaluation in the evaluation of organisational interventions, and consequently have limited knowledge of the causal links between mechanisms of organisational interventions, the contextual factors that influence the operation of such mechanisms, and the outcomes the mechanisms produce (Nielsen and Noblet, 2018).

We conducted a proof-of-concept cluster randomised controlled trial, the Workplace Organisational Health Study, to test the feasibility and efficacy of a participatory organisational intervention to improve working conditions and safety, health, and wellbeing of low-wage food service workers (Sorensen *et al.*, 2019). Food service workers are exposed to adverse working conditions that pose high levels of stress (Matsuzuki *et al.*, 2013) and high risks of injury (Alamgir *et al.*, 2007; Cann *et al.*, 2008; Cocci *et al.*, 2005).

Organisational interventions focus on changing working conditions to improve workers' safety, health, and wellbeing, however, few have been evaluated and are available in the literature (Busch *et al.*, 2017; Haukka *et al.*, 2008, 2010; Nielsen *et al.*, 2006; Siukola *et al.*, 2011).

Based on empirical data from the planning phase of the participatory organisational intervention (Peters *et al.*, 2020), we undertook the first step of a realist evaluation cycle and developed four initial MRTs (Roodbari, Nielsen, Axtell, *et al.*, 2021). This paper empirically tested one of these initial MRTs, participation. Although the literature highlights the importance of participation for intervention outcomes, still little is known about *how* participation interacts with prevalent contextual factors to produce intervention outcomes (Nielsen, 2013). In this paper, therefore, we empirically tested the following initial MRT about participation:

Initial MRT about participation: 'if there are reasonable workloads for employees and worksite managers, the level of employees' turnover is low, employees' readiness for change is high, and there are structures in place including existing regular meetings (*contextual factors*); *then* giving autonomy to employees to, collectively with their worksite managers, make decisions about improving their working conditions (a *participation mechanism*) will improve employees' awareness of their working conditions and behaviours, management of their energy levels and fatigue, and their feeling of being valued and satisfied (*outcomes*).'

The current paper's main contribution is the demonstration of how qualitative data can be used to test an initial MRT about participation. First, Nielsen and Miraglia (2017) called for future organisational intervention studies to use realist evaluation. In response, this paper uses qualitative data from a participatory organisational intervention in the US food service industry to empirically test an initial MRT. As such, the first research question in this paper is:

Research Question 1: How can initial CMO configurations be tested in an organisational intervention using qualitative data?

Second, Nielsen (2013) called for future organisational intervention studies to examine the mechanism of participation. In response, this paper tests an initial MRT about the mechanism of participation using evidence from the participatory organisational intervention. Therefore, the second research question in this paper is:

Research Question 2: What works for whom in which circumstances regarding participation in an organisational intervention?

The empirically tested MRT can help in the design of future participatory organisational interventions and increase their likelihood of success (Nielsen, 2013; Roodbari, Axtell, *et al.*, 2021).

Methods

Sampling and study setting

The need to improve food service workers' safety, health, and wellbeing prompted a large multi-national organisation to approach the Harvard T.H. Chan School of Public Health. This partnership resulted in the development and implementation of the Workplace Organisational Health Study. The organisation had worksites that provided food services to corporate clients through a contractual relationship. The worksites were located in corporate clients' premises across Massachusetts, USA.. Each worksite had a worksite manager, grouped into districts and managed by a district manager, who supervised the worksite managers.

The proof-of concept trial had two aims. First, to assess the effectiveness of the intervention (i.e., does it work?) using a cluster randomised design. Second, using realist evaluation, to understand variations in the intervention implementation in the intervention worksites (i.e., what works for whom in which circumstances?) within the intervention

worksites. We aimed to identify contextual factors that are likely to trigger the intervention's mechanisms to bring about the intended outcomes (Nielsen and Miraglia, 2017).

Intervention design

The participatory organisational intervention followed three phases: planning, implementation, and synthesis (Figure 1) (Sorensen *et al.*, 2021).

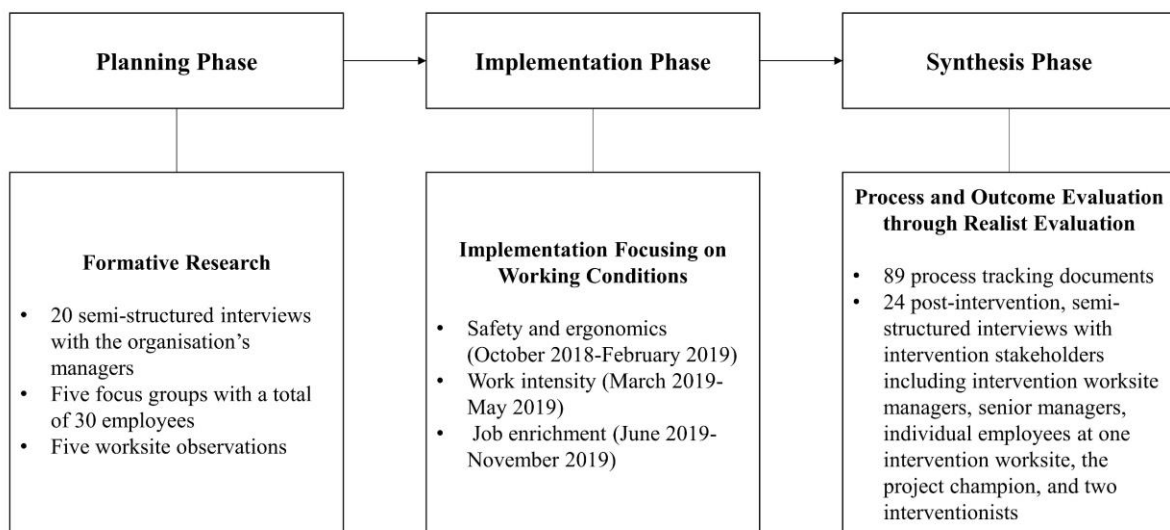
In the planning phase, the research team collaborated with organisational members at the district and worksite levels to create readiness and support for the intervention. In this phase, the research team conducted formative research, full details of the formative research are reported in other paper (Peters *et al.*, 2020). The formative research revealed four critical process mechanisms: (1) participation, (2) leadership commitment, (3) communication, and (4) tailoring the intervention to fit the organisational context. It, also, revealed three content mechanisms (i.e., influential working conditions on employees' safety, health, and wellbeing): (1) safety and ergonomics (e.g., burns, cuts, falls, trips, slips), (2) work intensity (e.g., workloads, various shift works), and (3) job enrichment (e.g., role clarity, career advancement pathways).

In the implementation phase, by using a Cluster RCT, ten worksites were assigned to five intervention worksites and five control worksites (Sorensen *et al.*, 2019). The implementation phase was from October 2018 to November 2019, lasting 13 months. Over this period, the intervention focused on improving the pre-determined working conditions sequentially (Nagler *et al.*, 2021): safety and ergonomics (October 2018-February 2019), work intensity (March 2019-May 2019), and job enrichment (June 2019-November 2019). At the start of the implementation phase, the research team conducted orientation meetings with the five intervention worksite managers. In these meetings, they reviewed intervention goals, problematic working conditions, and ways to align the intervention with the worksites. During the implementation phase, there was at least one in-person monthly meeting and a

phone call between the research team and each worksite manager. In the in-person meetings, they discussed potential priorities and action steps for the action planning process, strategies for encouraging employees' input on priorities, and needed resources to move forward. Approximately two weeks after each in-person meeting, the research team and worksite managers spoke on the phone to reflect on the last in-person meeting, plan for the next in-person meeting, track what has occurred related to the intervention, and provide necessary guidance and technical assistance.

In the synthesis phase, both the implementation process and intervention outcomes were evaluated using realist evaluation. This study received approval for human subjects research through the Harvard T.H. Chan School of Public Health Office of Regulatory Affairs and Research Compliance (Protocol # IRB16-0488).

Figure 1. The participatory organisational intervention phases



Data collection

To empirically test the initial MRT about participation, we collected qualitative data during the intervention's implementation and at follow-up. The first and third authors assisted the research team in collecting data at follow-up. We used qualitative data for two reasons. First, although using quantitative data is advantageous in causally linking participation measures to

contextual factors and intervention outcomes, qualitative data may better capture the complex nature of and interactions between mechanisms and contextual factors that result in outcomes (Pawson, 2013). Second, the targeted organisation provides food services to its corporate clients through its small-sized worksites (with employees ranging from 5-22). In quantitative studies with small sample size, the results may not have sufficient statistical power to detect a significant difference or effect (Cohen, 1988).

During the implementation, the research team collected 89 process tracking documents, recording all interactions between the research team and managers from the five intervention worksites. These interactions included regular in-person meetings, phone calls, and webinars between the research team and managers. We used process tracking as this method allowed us to avoid retrospective sensemaking and improve the understanding of how participation was triggered during the intervention and affected intervention outcomes (Nielsen and Randall, 2013). At follow-up, we conducted 24 semi-structured phone interviews with intervention stakeholders, see table 1 for the details of the interviews. We used semi-structured interviews as this method allowed us to ask specific questions based on realist evaluation principles to explore how intervention stakeholders perceived participation and its related contextual factors and outcomes (Nielsen and Randall, 2013). In the interviews, we followed the principles of realist evaluation (Nielsen and Miraglia, 2017); and asked questions exploring perspectives on intervention mechanisms, facilitating and impairing contextual factors, and intervention outcomes (Roodbari, Nielsen and Axtell, 2021). All interviews were audiotaped and transcribed verbatim.

Table 1. Overview of the data collection methods

When data was collected	Data collection methods	Who collected data	Participants	Timing
During the implementation	89 Process tracking documents	The research team	Multi-level managers of the five intervention worksites	N/A
Follow-up	Five semi-structured phone interviews	The research team	Five intervention worksite managers	30 minutes (range 13 to 53 minutes)
	Six semi-structured phone interviews	The research team	District level managers, including district managers, human resources, health and safety, and operations leaders involved in the intervention	39 minutes (range 29 to 50 minutes)
	11 semi-structured interviews	The research team	11 individual employees at one intervention worksite	19 minutes (range 14 to 26 minutes).
	One semi-structured phone interview	The second and third authors	The project champion (a senior manager who represented the company's national leadership and provided corporate-level support for the study)	63 minutes
	One semi-structured online interview	The first author	Two interventionists (two research team members responsible for the process tracking)	53 minutes

Data analysis

We used template analysis (King, 1998) to analyse data, in which an initial template (a priori themes from the initial MRT) is developed and then refined as data are analysed (Crabtree and Miller, 1992). In refining the initial template (i.e., initial MRT) into a finalised template (representing the empirical MRT), the first author and an experienced qualitative researcher independently coded empirical data based on intervention mechanisms, contextual factors, and outcomes. Both used NVivo 12 to code data and cross-checked their codes to enhance

trustworthiness. Then, the first, second, and third authors, focusing on participation, refined the initial template based on the emerged themes. Following a process of retroduction, which identifies links between specific mechanisms, their influencing contextual factors, and their outcomes (Greenhalgh *et al.*, 2017), the coded data was synthesised into a CMO configuration. This CMO configuration was then translated into an MRT using the statement of *'if there are specific contextual factors, then specific mechanisms produce specific outcomes'*.

The description of how qualitative data were collected, analysed, and synthesised into empirical CMO configuration answers the *Research Question 1*.

Results

In the following, we describe how the mechanism of participation was triggered, what contextual factors influenced triggering participation, and what proximal outcomes participation contributed to produce.

Mechanisms of participation

This mechanism was partially operationalised in some worksites, hindered by the organizational context. We found that 'worksite managers' participation' and 'employees' participation' were two different participation mechanisms operationalised as follows:

Mechanism one: worksite managers' participation in the intervention activities.

Worksite managers were the gatekeeper between the research team and employees. As such, their participation in the intervention activities was at two levels: (1) engagement with the research team and (2) engagement with employees.

For engagement with the research team, worksite managers attended approximately two-thirds of the targeted number of in-person visits, phone calls, and group training/discussion. Process tracking showed that: *"total contact points/planned contact points was 12.6/19 (66%)."* Worksite managers' engagement with the research team varied

across worksites. Process tracking showed that worksite managers received consultation, tools, and technical support from the research team in the forms of: (1) worksite-specific assessment reports of working conditions, (2) tools for developing and implementing an action plan, (3) consultation to develop solutions for improving the targeted working conditions, and (4) tools for engaging employees including scripts for huddles (existing regular meetings between worksite managers and employees in each worksite) for each working condition, and a coaching and feedback tool.

Regarding worksite managers' engagement with their employees, they decided the intervention activities that employees would participate in.

First, worksite managers' engagement with their employees varied in different worksites. (1) Only one of the worksite managers used the 2+2 coaching and feedback tool with employees. The 2+2 coaching and feedback tool was used to guide a brief conversation with an employee about two things that are working well, two things the employee should improve, and specific actions and next steps. An interventionist said: *"One worksite started – by the end of the intervention- using that (the coaching and feedback tool) and found it very helpful in terms of providing feedback and providing coaching."* (2) Only one worksite manager did involve employees in selecting priorities for the safety and ergonomics module. (3) Only two worksite managers confirmed using the huddle scripts.

Second, worksite managers' engagement with their employees about the intervention activities was limited. An interventionist explained: *"I would say most of them (worksite managers) didn't do much. They sat on the phone calls, they talked to us when we were in, but I don't think much happened in between...There was always a lot of reasons why they couldn't get to it when we had our check-in phone calls."*

In short, worksite managers' engagement with the research team was partially operationalised. Worksite managers' engagement with employees was limited and inconsistent across worksites.

Mechanism two: employees' participation in the intervention activities. Data showed that employees' engagement in determining how to improve their working conditions was minimal. An interventionist recalled: "*Yeah. So only in the one smaller worksite where they (employees) provided written feedback to the worksite manager. And then at one of my other worksites the worksite manager did ask everyone to write something down regarding safety and ergonomics, and only two people did. But while we were in the worksites, the few huddles that we were participating in, they said almost nothing.*" In brief, employees' engagement in the intervention activities was minimal.

Contextual factors that influenced participation

Contextual factor one: existing high workloads of both worksite managers and employees (a barrier). High workloads limited worksite managers' and employees' ability to participate in intervention activities. A worksite manager asserted that: "*I really think it (a barrier to participating in the intervention) was a time thing. Our industry is very intense – our jobs are very intense...There's rarely any downtime in our position.*" In summary, existing high workloads of both worksite managers and employees impaired their participation.

Contextual factor two: lack of worksite managers' motivation to participate in the intervention (a barrier). Three worksite managers described their motivation for participating in the intervention as coming from higher leadership, in that they were informed by their managers that they would participate in the intervention. A worksite manager explained that: "*There was nothing really that motivated me. I was told pretty much that my worksite was selected and asked me what you're gonna do.*" The lack of worksite managers' motivation hindered their participation.

Contextual factor three: host corporate clients' control over the worksite environment (a barrier). Worksites were accountable to both the organisation (the parent employer) and their clients. First, worksites had to respond to clients' catering requests often with little notice, which meant they had limited time to engage in the intervention activities. The project champion explained: *"We try to stick to their (clients') goals. It's all about them. So, if quality of life or employee wellbeing is important, truly, for everyone, yeah we'd bring them in. Otherwise, no, because it's another time thing and – the [clients'] perception could be, why are they (worksites) doing this, why is it taking away time from them doing the core business [which is preparing and selling food]?"* Second, as the cafeterias were owned housed in the client's building, the client needed to approve any changes made to the appearance/physical work environment. For example, process tracking showed: *"There are some things that the client won't allow to change...The worksite has no choice."* In short, host corporate clients' control over the worksite environment impaired participation.

Contextual factor four: high worksite managers' turnover (a barrier). There was a high level of worksite managers' turnover during the intervention period. For instance, in one worksite, four worksite managers turned over during the intervention. A safety manager outlined that: *"They (worksite managers) get shuffled and moved around. They want to get promoted and further their careers and they're always looking at the next step. So, there's that turnover which is a big challenge."* Such a high level of turnover meant that new worksite managers did not know enough about the work environment and employees in their worksites to engage them in the intervention activities, or have enough time to complete intervention activities when they were becoming oriented to their new job/worksite. For example, process tracking notes revealed: *"The worksite manager is very hesitant to engage employees [in the intervention activities]; he doesn't know enough about the worksite or staff yet."* In brief, high worksite managers' turnover hindered their participation.

Contextual factor five: employees' language barriers. Communication at worksites was generally conducted in English, unless the manager or other employees could translate. Therefore, language barriers made engaging employees, whose primary language was not English, in the intervention activities harder. A worksite manager explained that: “*We (worksite managers) are those ones that set the tone and pass through all the information [about changes at the worksite level]...And of course, there are some language barriers in that.*” In summary, language barriers impaired employees' participation.

Contextual factor six: diminished support by the senior managers (district and national managers) to the worksite managers (a barrier). Senior managers voiced support for the intervention and supported the intervention at its start. However, during the intervention, support from senior managers (mainly from district managers) was impeded by competing priorities, turnover, and lack of resources. Therefore, worksite managers received little support to overcome some of the contextual barriers to participation. A worksite manager recalled that: “*There was a lot of assistance from those above us, there was a bit right after the meeting (an introduction meeting between the research team and managers at multi-level), but then that's kind of where it ended.*” Diminished senior management support reduced worksite managers' motivation to participate in the intervention activities. For example, a district manager called employees' list of safety concerns a ‘Christmas Wish List’, which discouraged the worksite manager from participating and further obtaining employees' inputs. In sum, diminished support by the senior managers to the worksite managers hindered worksite managers' participation.

Contextual factor seven: existing participatory practices (a facilitator). Two participatory practices in the organisation were used in the intervention's activities and facilitated participation in some worksites. First, in each of the worksites, the worksite manager brought together all staff in huddles—an existing organizational practice—on a regular

basis to facilitate employees' participation. An employee stated that: *"Since I've been here, it seems like they're (worksite managers) doing it [huddles] more. I guess they always did it, but they're doing it more often now. I guess, to make sure everyone's refreshed and knows about the safety rules and everything."* Second, in one worksite, the manager used an existing health and safety committee to funnel employee input. An interventionist stated that: *"The worksite manager had a health and safety committee at that worksite... he was going to funnel employee input through this safety committee."* In short, existing participatory practices facilitated participation.

Proximal outcomes that participation contributed to produce

Our analyses showed that worksite managers' participation with the research team was partially triggered, but worksite managers' participation with the employees related to the intervention was minimal. As such, the participatory intervention resulted in limited, sporadic improvement in worksite managers' awareness of how working conditions can impact on their employees' safety, health, and wellbeing. Three worksite managers acknowledged this proximal outcome as a result of the participatory intervention. For example, a worksite manager shared: *"What it (the participatory intervention) brought to the table for me was a fresh eye approach as to the way that we conduct our business. There were some safety issues that were addressed and corrected...And it was a good opportunity for us to address some over and above issues that aren't currently covered by our standards."* In sum, worksite managers' participation resulted in limited improvement in their awareness of how working conditions can impact on their employees' safety, health, and wellbeing.

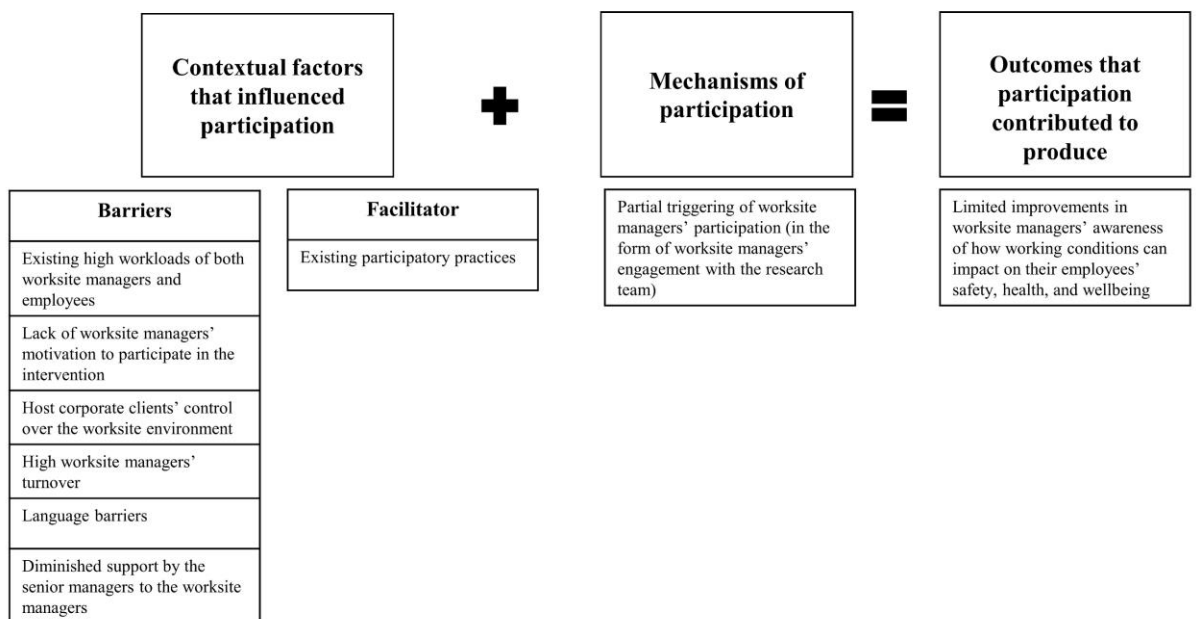
Based on the above empirical evidence, we modified the initial MRT to the following empirical MRT (figure 2).

Empirical MRT about participation: if there are barriers of high workloads of worksite managers and employees, lack of worksite managers' motivation to participate in

the intervention, host corporate clients' control over the worksite environment, high worksite managers' turnover, language barriers, and diminished support by the senior managers to the worksite managers (*barriers*), despite existing some participatory practices in the organisation (*facilitator*) (*contextual factors*); **then** partial triggering of worksite managers' participation (in the form of worksite managers' engagement with the research team)(*participation mechanism*) results in limited improvement in worksite managers' awareness of how working conditions can impact on their employees' safety, health, and wellbeing (*proximal outcome*).

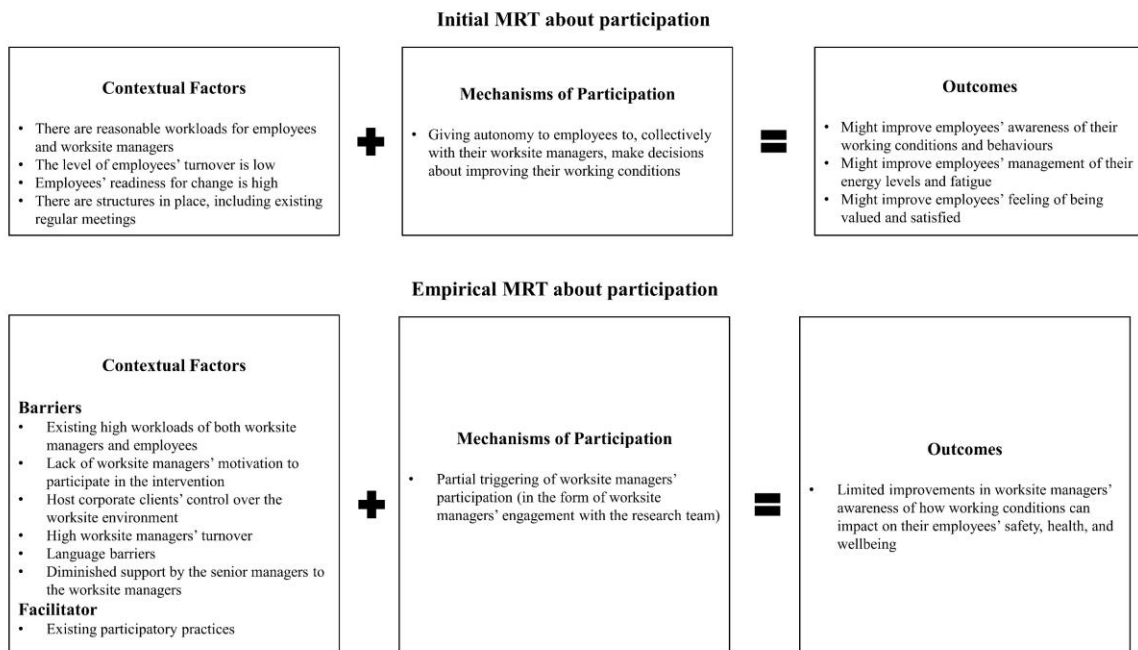
The above empirical MRT about participation answers the **Research Question 2**.

Figure 2. Empirical MRT about participation



Discussion

Based on qualitative empirical data from a participatory organisational intervention in the U.S. food service industry, we tested and modified an initial MRT about the mechanism of participation into an empirical MRT. Figure 3 shows CMOs of the initial and empirical MRTs.

Figure 3. Initial and empirical MRTs about participation

As shown in figure 3, the CMOs of the empirical MRT have similarities and differences compared to the CMOs of the initial MRT. Regarding mechanisms, in the initial MRT the proposed mechanism was full engagement of both worksite managers and employees in intervention activities to improve their working conditions. However, in the empirical MRT, the operationalised mechanism was partial worksite managers' engagement with the research team. Since the full operation of worksite managers' participation was necessary for triggering employees' participation, it was unlikely that employees' participation was triggered. This finding highlights the importance of examining participation at the different levels of the organisation and the research team's role in the participatory processes.

Regarding contextual factors, both the initial and empirical MRTs acknowledged that existing participatory practices facilitate participation and high workload impairs participation. The empirical MRT incorporated five unanticipated contextual factors, all of which impaired participation: (1) lack of worksite managers' motivation to participate in the

intervention, (2) host corporate clients' control over the worksite environment, (3) high worksite managers' turnover, (4) language barriers, and (5) diminished support by the senior managers to the worksite managers. We identified more contextual factors in the empirical MRT than in our initial MRT. The identification of further contextual factors indicates that the initial MRT did not anticipate all the contextual factors that impaired triggering participation during the implementation (Pawson and Tilley, 1997, 2004).

The proposed outcomes in the initial MRT were about employees' awareness of their working conditions and their health and wellbeing. These outcomes could not be measured, and due to the very limited triggering of employees' participation in a few worksites, our expectation is that these outcomes were not likely produced. Instead, partial triggering of worksite managers' participation (in the form of worksite managers' engagement with the research team) resulted in limited improvement in worksite managers' awareness of how working conditions can impact on employees' safety, health, and wellbeing.

Regarding the link between participation and contexts, the literature supports our finding that existing participatory practices as a contextual factor facilitates the triggering of participation (von Thiele Schwarz *et al.*, 2017). The literature also supports the contextual factors that we identified for impairing participation, including: (1) workloads of both worksite managers and employees (Arapovic-Johansson *et al.*, 2018), (2) lack of worksite managers' motivation to participate in the intervention (Busch *et al.*, 2017), (3) language barriers (Busch *et al.*, 2017), and (4) diminished senior managers' support of the intervention (Schelvis *et al.*, 2016). We also identified two additional contextual factors that impaired the triggering participation, including: (1) host corporate clients' control over the physical worksite environment and (2) worksite managers' turnover. These factors particularly characterise this setting of contracted worksites in the food service industry. Future organisational intervention studies can explore these two barriers further in other settings.

Regarding the link between participation and outcomes, we could not find evidence in the literature showing the link between worksite managers' participation and their awareness of how working conditions can impact on employees' safety, health, and wellbeing.

However, von Thiele Schwarz et al. (2017) found that the employees' participation increased employees' awareness of and capacity to manage psychosocial issues.

Overall, the empirical MRT contained more CMOs compared to the initial MRT. As such, we recommend that initial MRTs representing 'what *might work* for whom in which circumstances?' should be tested in different contexts to see 'what actually *worked* for whom in which circumstances?'. Following this cycle can add more crucial, tested CMOs to the empirical MRTs that represent 'what *works* for whom in which circumstances?'.

Implications for future research and practice

Our study has both theoretical and practical implications. We employed realist evaluation as a promising theoretical approach (Nielsen and Miraglia, 2017) to evaluate the mechanism of participation in a participatory organisational intervention. We describe how we collected, analysed, and synthesised qualitative empirical data to test an initial MRT about the critical mechanism of participation in a participatory organisational intervention (Wong *et al.*, 2016). Future participatory organisational interventions can follow our data collection, analysis, and synthesis process to further refine this MRT about participation in different contexts. This approach helps accumulate theoretically informed knowledge about how participation works for whom in which circumstances (Nielsen and Miraglia, 2017).

Our tested MRT provides insights to occupational health practitioners and organisational managers to design and evaluate future participatory organisational interventions. Regarding the mechanisms of participation, the triggered mechanism in our study was worksite managers' participation (in the form of worksite managers' engagement with the research team). In this regard, we recommend occupational health practitioners and

organisational managers should investigate participation at two levels with worksite managers and employees, and assess their temporal effects on each other and on intervention outcomes (Tafvelin *et al.*, 2019). Both worksite managers and employees are active agents, and they should, therefore, collectively participate in the intervention activities to make a participatory intervention succeed. Worksite managers are often the drivers of change as they translate intervention goals into plans for change that are understandable to employees and, employees are responsible for implementing the planned changes (Nielsen and Miraglia, 2017).

Regarding contextual factors, occupational health practitioners and organisational managers should strengthen facilitators and overcome barriers to triggering effective participation.

Regarding the facilitator of ‘existing some participatory practices in the organisation’, we recommend increased use of existing participatory policies, practices, and procedures to operationalise participation.

Regarding the barrier of ‘lack of worksite managers’ motivation to participate in the intervention’, possible solutions could be: (1) conducting transparent recruitment of intervention worksites, (2) communicating with worksite managers about the importance of employees’ health, safety, and wellbeing and the impacts of the participatory organisational intervention on such outcomes, (3) ensuring they receive encouragement from the managers above them and the requisite resources to support success, and (4) helping them to tailor intervention activities to their specific organisational context (Lundmark *et al.*, 2020).

Regarding the barrier of ‘high workloads of worksite managers and employees’, we recommend tailoring the intervention process and content to avoid putting additional pressure on worksite managers and employees, for instance, through integrating the intervention process into existing meeting structures (von Thiele Schwarz *et al.*, 2021).

Regarding the barrier of ‘host corporate clients’ control over the worksite environment’, possible solutions could be: (1) communicating with the clients about the dual benefits of the participatory organisational intervention for clients and employees and (2) including specific terms in contracts with clients that allow the organisations to improve working conditions considering the time and cost for implementing such improvements.

Regarding the barrier of ‘high worksite managers’ turnover’, possible solutions could be: (1) developing contingency plans in collaboration with multi-level managers to accommodate turnover, or unexpected absences of worksite managers, (2) establishing an operational steering group in each worksite to maintain intervention activities throughout the intervention period, and (3) assigning more than one intervention champion in each worksite (e.g., worksite manager and employees’ champion) responsible for the intervention activities.

Regarding ‘language barriers’, a potential solution could be assigning experienced employees to mentor junior employees who speak the same language (Busch *et al.*, 2017).

Finally, regarding the barrier of ‘diminished support by the senior managers to the worksite managers’, we recommend: (1) identifying who has decision-making authority to influence the intervention activities, (2) communicating with them about the goals and process of the intervention, (3) aligning intervention activities with their priorities early on, and (4) developing their leadership resources for supporting intervention activities (Karanika-Murray *et al.*, 2018).

Our observed outcome manifested a link between worksite managers’ partial participation in the intervention and limited improvement in their awareness of how working conditions can impact on employees’ safety, health, and wellbeing (a *proximal outcome*). We recommend occupational health practitioners and organisational managers should investigate Context-Mechanism (worksite managers’ participation)-Outcomes, Context-Mechanism (employees’ participation)-Outcomes, and their temporal effects on each other and on

intervention outcomes over the intervention period. Such effects can be investigated using a chain of effects proposed by Nielsen and Abildgaard (2013, p.288).

This paper answered two research questions. ***Research Question 1: How can initial CMO configurations be tested in an organisational intervention using qualitative data?*** This paper undertook the second, third, and fourth steps of a realist evaluation cycle (Pawson and Tilley, 2004). It described how qualitative data were collected (through 89 process tracking documents and 24 post-intervention, semi-structured interviews with different intervention stakeholders), analysed (using template analysis), and synthesised (using retrodution) into empirical CMO configuration. Future intervention studies can follow our approach to test their intended mechanisms using realist evaluation. ***Research Question 2: What works for whom in which circumstances regarding participation in an organisational intervention?***

This paper tested the initial CMO configuration about the critical mechanism of participation. The tested CMO configuration showed how participation was operationalised in the intervention, what contextual factors facilitated or impaired the operation of participation, and what proximal outcomes participation contributed to produce. Future intervention studies can further test and refine this MRT in similar or different contexts.

Strengths and limitations

Three strengths of this study can be highlighted. First, this study used realist evaluation, as a promising theoretical approach, to study participation as the central mechanism of participatory organisational interventions and its related contextual factors and outcomes (Nielsen, 2013; Nielsen and Miraglia, 2017). Second, this study focused on a participatory organisational intervention in a fissured work environment with low-wage employees from diverse cultures and languages. Third, we collected data through a substantive number of process tracking documents and post-intervention interviews with different intervention stakeholders.

This study also faced two main limitations. First, although qualitative data better capture the complex nature of and interactions between mechanisms and contextual factors that result in outcomes (Pawson, 2013), using quantitative measures of outcomes could help to triangulate results and provide a more scientific evaluation of the CMOs (cf. Abildgaard *et al.*, 2020; Busch *et al.*, 2017). However, due to closures related to the COVID-19 pandemic, we could not conduct surveys and measure quantitative outcomes. Second, due to a COVID-19 lockdown at the end of the intervention period, we could interview only 11 employees at one intervention worksite. The collected employee data were not rich enough to extract their perspectives on outcomes and outcomes' links with intervention mechanisms as required by realist evaluation (Pawson and Tilley, 2004). We recognise that the perceptions of all employees in different intervention worksites about outcomes and their links with mechanisms are critical in the evaluation of interventions (Nielsen *et al.*, 2021). Given these limitations, we acknowledge that the reported outcome might not be the same if we could have collected and analysed quantitative measures of outcomes and if we could have interviewed employees from all of the five intervention worksites.

Our positionality had three aspects (Savin-Baden and Major, 2013). First, relevant to the research project, we shared our mental model of 'working conditions are determinants of employees' health and safety and organisational outcomes' with the organisational members and helped them to plan and implement intervention activities. Second, relevant to participants, it is possible that employees viewed us as outsiders and were less confident and willing to share their ideas with us; in response, we asked worksite managers to encourage employees to express their ideas and we sought consent from participants and assured them confidentiality in our data collection. Third, relevant to data gathering and findings, we had different backgrounds and levels of experience, and were from different academic levels, hence, to ensure we have similar mental models of the evaluation, we used teamwork and

held several meetings. Also, to ensure we had similar mental models of the intervention with employees, we tried to simplify questions to ensure employees understand and answer the questions, also, the interviews with employees were done by two interventionists who were familiar with the worksites and employees.

Conclusion

This paper empirically tested an initial MRT about participation based on qualitative empirical data from a participatory organisational intervention in the U.S. food service industry. The tested MRT showed how participation was operationalised in the intervention, what contextual factors facilitated or impaired the operation of participation, and what proximal outcomes were produced. Therefore, this paper contributes to the understanding of ‘what works for whom in which circumstances’ regarding participation in organisational interventions. Future organisational interventions can follow our qualitative approach based on realist evaluation to develop and test initial MRTs focusing on different mechanisms; also, they can further refine our tested MRT about participation in different contexts.

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