

# INTERVENTION PROCESS EVALUATION

Process evaluation for organizational stress and well-being interventions: Implications for  
theory, method, and practice

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# INTERVENTION PROCESS EVALUATION

## **Abstract**

Although the body of evidence showing the effects of psychosocial risks on employees' health is substantial, effective and sustainable stress prevention remains a thorny and complex issue. Most studies have focused on evaluating the effects of organizational interventions, and the results are mixed. Researchers find the evaluation of such actions methodologically challenging whereas practitioners often find the development and implementation of such actions a complicated matter. One of the reasons for this mixed impact is the lack of attention to contextual and process issues, namely how, when, and why interventions have their effects on outcomes such as mental health, well-being, and organizational performance. This paper aims to help researchers and practitioners to improve the development, implementation, and evaluation of organizational initiatives designed to reduce exposure to stress, to promote well-being, and healthy organizations. We review recent developments in the literature on process evaluation and propose examples of broader theoretical frameworks that could be used to improve this area. We articulate the essential elements for developing and bridging gaps between theory, methods, and practice. Throughout, we provide recommendations for the content, process and reporting of research on IPE.

*Keywords:* intervention process evaluation, context, organizational interventions, well-being, occupational stress

## INTERVENTION PROCESS EVALUATION

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Because of their focus on reducing or eliminating the stressful and harmful aspects in the workplace, organizational-level interventions have been thought to be more effective compared to individual-level initiatives which attempt to modify individuals' ability to cope with stress (Semmer, 2011). Several reviews (Briner & Reynolds, 1999; Graveling, Crawford, Cowie, Amati, & Vohra, 2008; Parkes & Sparkes, 1998; Richardson & Rothstein, 2008; Van der Klink, Blonk, Schene, & Van Dijk, 2001) have concluded that there is not sufficient empirical evidence to draw conclusions on the effectiveness of organizational-level interventions, and that the research designs that have been used are too varied or not considered sufficiently strong. This is worrying given the pervasiveness and costs of work-related stress and the considerable resources that organizations invested to manage it. In 2010 an observation was made that "at present little real progress is being made in [stress] intervention research [and] we do not need 'more of the same'" (Cox et al., 2010, p. 217). The implementation of interventions at the organizational level is considerably more complex and requiring more extensive resources than interventions at the individual level. Nevertheless, and despite calls for the importance of understanding intervention implementation coming from a range of areas such as organizational studies (e.g. Langley, 2009; Pettigrew, Woodman, & Cameron, 2001) and training evaluation (e.g. Brown & Gerhardt, 2002), currently, the knowledge about the role of process and contextual variables influencing intervention success is rather embryonic (Egan, Bambra, Petticrew, & Whitehead, 2009; Murta, Sanderson, & Oldenburgh, 2007). Rather, researchers have mainly focused on understanding *if*, rather than *how*, *when* and *why*, interventions are effective in reducing the negative consequences of stress at work. Despite several calls for attention to process and contextual issues and for the use of broader conceptual frameworks to evaluate stress

## INTERVENTION PROCESS EVALUATION

interventions (Biron, Cooper, & Bond, 2009; Biron, Karanika-Murray, & Cooper, 2012a; Cox, Karanika-Murray, Griffiths, & Houdmont, 2007; Semmer, 2011), their evaluation is a rather complicated and uncertain task.

In this paper, we discuss how intervention process evaluation (IPE), an emerging field in intervention research, can enhance our understanding of how, when and why organizational interventions for stress succeed or fail. First, we discuss two frameworks that can be used to evaluate the intervention process. Case studies are described to illustrate how IPE can deepen understanding of the interventions' outcomes. We then draw on the organizational change literature to propose examples of broader theoretical frameworks that could be used to improve IPE. Finally, based on recent developments in the field of IPE, we articulate the essential elements for developing and bridging gaps between theory, methods, and practice. Throughout, we provide recommendations for the content, process and reporting of research on IPE.

### **Intervention process evaluation frameworks**

Stress research has been criticized for being a-theoretical (Briner & Reynolds, 1999) and too strictly focused on methodological rigour instead of practical relevance (Anderson, 2007; Anderson, Herriot, & Hodgkinson, 2001; Cox, Karanika-Murray, et al., 2007). Where theory is used, this largely tends to specify relationships rather than describe processes. Mohr (1982) makes a useful distinction between variance (or factor) and process models: variance models aim to explain the variance in the outcomes whereas process models describe how and when things happen. Variance models describe the sufficient conditions whereas process models describe the necessary conditions for an outcome. It can be argued that, so far, organizational intervention theory has mainly provided variance models which describe the effects of particular interventions or the factors affecting particular outcomes. Thus, unlike organizational change theory (Tetrick, Quick, & Gilmore, 2012; Tvedt & Saksvik, 2012),

## INTERVENTION PROCESS EVALUATION

organizational intervention theory has failed to explain the process of change and the conditions for the impact of the intervention on the desired outcomes. However, variance and process are not mutually exclusive; an understanding of process is essential for understanding the variance in intervention outcomes, thus providing a more comprehensive understanding of an intervention and its effects.

The concepts of process and factor models can be usefully related to formative and summative evaluation (see Table 1); the former seeks to identify weaknesses in the program in order to improve it, whereas the latter equates to evaluate the outcomes of the program (Dick & Carey, 1996). Formative evaluation can be conducted throughout the intervention, from design through to implementation, whereas summative evaluation is conducted after the intervention or parts of it have been implemented. In the case of organizational interventions for stress and well-being, this timeframe can be rather long. Indeed, Parkes and Sparkes (1998) note that although a 12-month time lag between baseline and evaluation measures is typical, for complex interventions 18 months can be necessary before effects are noticeable.

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Insert Table 1 about here

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The need for theoretical development in the field of IPE raises the question of *what* should actually be evaluated. Although process evaluation frameworks have been proposed in other fields such as organizational change, public health, and community programme evaluation (e.g. Dawson, 1994; Linnan & Steckler, 2002; Stufflebeam, 2001), here we present examples of frameworks that have been used in stress research, in order to illustrate how IPE can enhance our understanding of how and why interventions produce their effects. We then illustrate how the components in these models can be used for IPE with case studies.

Goldenhar, LaMontagne, Katz, Heaney, and Landsbergis (2001) propose a three-

## INTERVENTION PROCESS EVALUATION

phase framework on the intervention research process and suggest that concrete answers to specific questions have to be provided at each phase. During the developmental phase, research should provide answer to questions relating to: the changes needed to enhance the health of the target population, the best ways to bring about these changes, the principles or theories that may might apply in a particular situation, the barriers that hinder the desired changes from happening, and the extent to which the target audience understands and buys into the need for the changes. For the implementation phase, also relating to formative evaluation (see Table 1), questions relate to how the intervention is implemented, specifically: the components of the intervention (e.g., activities, materials, technology) and how it was delivered to participants; the quality of the intervention components (e.g., were trainers well qualified, was documentation pertinent, equipment properly used); a description of how the target audience experienced the intervention; and whether the intervention was delivered according to plan. The last phase of the framework is the effectiveness phase, which equates to summative evaluation (see Table 1). Here, research should aim to answer questions relating to: the extent to which the intervention reduced illnesses or disability, and worker exposure to hazardous conditions; the effect of the intervention on the social and economic consequences of work injury and illness (e.g., worker compensation, medical and indemnity costs, quality of life); and how workers' knowledge, attitudes, or behaviours changed as a result of the intervention.

Bourbonnais et colleagues (Bourbonnais, Brisson, Vinet, Vézina, et al., 2006; Bourbonnais, Brisson, Vinet, Vezina, & Lower, 2006) used the model by Goldenhar et al. (2001) to conduct a participative intervention aimed at reducing adverse psychosocial constraints and prevent mental health problems in healthcare providers. The researchers conducted a quasi-experimental study with one experimental and one control group, with three measures over 36 months. Following the initial risk assessment, qualitative methods

## INTERVENTION PROCESS EVALUATION

were used. Direct observation took place to gain better understanding of the work conditions and the organization, and to identify themes to be included in the interviews. Key informants were met to document favourable and unfavourable conditions for the interventions, such as conflicts, constraints, communication problems, conflicting priorities. An intervention team was also implemented based on the principles of health circles. The intervention team aimed to identify psychosocial risks in specific units, recommend actions to reduce them and evaluate the feasibility. The intervention team produced reports after each meeting, which were diffused and communicated. Overall, 56 intervention targets were identified along with recommendations for solutions ranked by priority and feasibility. The results suggest that after 12 months only, positive effects of the intervention were found on psychosocial risks in the intervention group but not in the control group. This study highlights how the three-phase model of Goldenhar et al. (2001) can be used to document both process and effectiveness of complex organizational stress interventions.

Another framework useful to evaluate the intervention process is proposed by Nielsen and Randall (2012b). It includes three components: 1) intervention context, 2) intervention design and implementation, and 3) participants' mental models. They refer to Johns' (2006) conceptualization of discrete and omnibus contexts which can mediate or moderate the effects of interventions. Context here is defined as "situational opportunities and constraints that affect the occurrence and meaning of organizational behaviour as well as functional relationships between variables" (Johns, 2006, p. 386). Omnibus contextual issues include, for example, the pre-intervention healthiness of an organization, the fit between the organizational culture and the proposed intervention (Randall & Nielsen, 2012), and ceiling effects which can prevent further improvements in outcomes. Discrete contextual issues relate to the events taking place during intervention implementation, such changes in the organization, corporate strategic decision-making activities, or conflicting projects and

## INTERVENTION PROCESS EVALUATION

priorities. Examples of contextual issues influencing the intervention include the implementation of new organizational structures (Nielsen, Fredslund, Christensen, & Albertsen, 2006) conflicting change initiatives, or economic factors such as downsizing or restructuring. For example, Biron et al. (2010) report that following a risk assessment at the team level changes in team composition were too frequent to allow for interventions to be implemented.

The second component of the process evaluation model proposed by Nielsen and Randall (2012b) relates to the intervention design and implementation strategy: documenting who initiated the intervention and for what motives; whether the intervention activities targeted the problems of the workplace; what were the roles of stakeholders such as middle managers, senior management, participant, external consultant; what exactly was the substance and nature of changes; whether interventions reached their target and were communicated properly. An instrument which can be useful to evaluate this component is proposed by Tvedt, Saksvik, and Nytrø (2009) who developed an index evaluating the healthiness of the change process based on dimensions identified in a previous qualitative study (Saksvik et al., 2007). Their work suggests that the healthier the change process, the lesser the impact of job demands on well-being. Healthy change process refers to attention to awareness of norms and diversity, early role clarification, manager availability, and using constructive conflicts to cope with change. Other informal contextual factors were also hypothesised as critical to the success of an intervention (Saksvik, Nytrø, Dahl-Jorgensen, & Mikkelsen, 2002): (1) a social climate of learning from failure, (2) opportunities for multi-level participation and negotiation in the design of interventions, (3) cultural maturity, which implies a high level of change management competencies, (4) insight into tacit and informal organizational behaviour that may undermine the intervention, such as unresolved anxieties, passive sabotage and non-intended subversion, (5) defining roles and responsibilities before



## INTERVENTION PROCESS EVALUATION

and during the intervention period.

The third component, participants' mental models, refers to individuals' perceptions and appraisal of the intervention. As Nielsen and Randall (2012b) mention, managers, employees and other stakeholders may have differing views and interests in the intervention, which might explain their reaction and behaviours during the intervention. Line managers have a determining effect on the implementation of interventions, as highlighted by Dahl-Jørgensen and Saksvik (2005) who report that managers tended to resist change by restricting the time spent on intervention activities by employees. Participants' readiness to change is important for understanding intervention outcomes (Tvedt & Saksvik, 2012) but has rarely been measured directly in stress intervention research.

Biron, Cooper and Bond (2009) suggest that instead of considering only distal intervention outcomes (such as reductions in absenteeism rates or improvements in health-related outcomes) it is useful to consider more proximal effects at each phase of the intervention process. At each phase of the intervention, it is useful to determine the relevant moderators or mediators to be measured or documented and to specify their effects on the intervention outcomes.

### **Initiation and preparation phase**

During the preparation phase, if line managers feel they have the responsibility to implement changes without the appropriate support, the intervention is at risk of failing (Biron, Gatrell, & Cooper, 2010; Lewis, Yarker, & Donaldson-Feilder, 2012; Randall, Griffiths, & Cox, 2005). Biron et al. (2010) conducted a longitudinal mixed-methods study in a UK private company to investigate with a stress risk assessment tool was poorly used by managers. The tool was meant to be simple, user-friendly, and to provide both an individual portrait of psychosocial risks, as well as a comparative picture of each natural team with the rest of the company. Interviews with managers showed how they perceived little need for the

## INTERVENTION PROCESS EVALUATION

tool, and how the context was too unstable to have a valid portrait of psychosocial risks at the team level. Moreover, flaws in the intervention design undermined its implementation.

Quantitative results suggest that managers were uncomfortable with the process as they were reluctant to discuss the result of the risk assessment with their employees. The study also shows that in teams where managers conducted the risk assessment without any subsequent intervention, employee commitment decreased over time, which suggest that unmet expectations is worse than no intervention at all. This study highlights that evaluating early outcomes in the intervention cycle (Biron et al., 2009) such as managers' level of comfort (i.e. mental models) and team stability (i.e. discrete context) can bring additional explanation regarding implementation. Failed interventions may have a detrimental effect on people's willingness to participate in future intervention activities.

### **Designing actionable intervention plans**

As argued by Nielsen (forthcoming), in current IPE frameworks, employees are seen as passive recipients of the intervention and their reactions to the intervention activities are measured to determine their effects on outcomes (Egan et al., 2009; Murta et al., 2007; Steckler & Linnan, 2002). Yet, evidence suggests that employees and managers are actively engaging in phase of the intervention (Nielsen, Randall, Holten, & Gonzalez, 2010). They interpret the results of the risk assessment, and their involvement in translating it into actionable plans has an effect on the intervention outcomes. Nielsen, Randall, and Albertsen (2007) followed 11 organizational-level intervention projects to determine the impact of participants' perceptions of the intervention process in determining the success (or failure) of interventions. Their results show that having an influence and opportunity to shape the intervention (e.g., its content, timing, target population) mediated the relationship between information about the project and participation in the intervention activities.

### **Implementing the interventions**

## INTERVENTION PROCESS EVALUATION

After action plans have been designed, IPE is needed in order to ensure the intervention is adequately delivered (Dobson & Cook, 1980). IPE is necessary to avoid concluding that a program was ineffective when in fact it was the implementation of the program that was flawed (i.e Type III error). To avoid this error, the research design must take into account the integrity (or fidelity) of the intervention, which is the degree to which the intervention is implemented as planned (Jackson & Waters, 2005). For example, Biron, Ivers, Brun, and Cooper (2011) examined the effectiveness of complex interventions to improve stress-related outcomes. The study aims to examine whether a linear relationship exists between exposure to interventions and improvements in outcomes. The study comprised two conditions (intervention vs. comparison) based on naturalistic (non-randomized) groups that were measured before the start of the invention and 18 months later. Process evaluation was conducted in two phases, using a mixed methods design. The first phrase consisted of documenting the changes implemented, participants' perceptions, barriers and facilitators. Individual and group interviews as well as field notes (meeting attendance) were collected and transcribed systematically throughout the 20 months. The second phase consisted of constructing questionnaire items to measure exposure to implemented interventions. Although each project was tailored to the needs of the unit, each project had similar aims since they all 1) involved multiple components, 2) aimed to modify job characteristics, 3) aimed to increase employee participation and 4) aimed to improve relationships between employees and managers as well as within teams. Because such interventions are complex and target multiple components simultaneously, the purpose was to create a brief index of overarching intervention categories. Results showed that participants highly exposed to the overall intervention reported improvements on all outcomes, whereas only 12% of outcomes improved in participants with low exposure level to the interventions.

### **Evaluating process, context, and outcomes**

## INTERVENTION PROCESS EVALUATION

The above examples highlight how to include process and context evaluation in our research designs, and suggestions of research questions based on theoretical models are summarized in Table 2. The table integrates components of IPE frameworks based on the cycle of intervention implementation, namely: initiating and preparing for change, designing actionable intervention plans, implementing the intervention, and evaluating the intervention. This is evocative of the risk management cycle (Cox et al., 2000), but broader in that it considers any type of organizational intervention for stress and it follows the problem-solving cycle.

The evaluation design should go beyond the measures of what has been implemented and to what extent. In order to explain the variations (or absence of variations) in outcomes, researchers should conduct subgroup analyses, to verify what groups of participants benefited the most from the intervention, and what were the mechanisms through which these changes occurred. Also, in addition to documenting contextual factors hindering and facilitating the interventions, research should also include the likelihood that different stakeholders will use different, or multiple, criteria when evaluating the success of a stress intervention project. Cole et al. (2003) point out that there are “cultures” of evidence, and that what constitute a success or a failure might differ according to different. For example, in a large intervention study, Hasson et al. (2012) report that for half of the changes implemented, there differences in the proportion of employees and managers who noticed that the changes were implemented. Managers reported some changes that went unnoticed by employees.

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Insert Table 2 about here

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### **Reporting intervention process evaluation**

The general lack of theoretical frameworks in intervention research carries with it an

## INTERVENTION PROCESS EVALUATION

uncertainty about how to report IPE. Egan et al. (2009) suggest that the reporting standards in intervention evaluation are poor and inconsistent. They suggest that in order to explain how and why the intervention produced any effects, the researcher should be able to describe (1) what exactly the intervention entailed; (2) whether the intervention was implemented fully and how it was perceived or received by the participants, and (3) whether contextual factors moderated or mediated the intervention outcomes. However, in most cases researchers present anecdotal reports of implementation, tending to describe what motivated the stakeholders to implement interventions, and if they were supported by employees (Egan et al., 2009). Egan et al. (2009) conclude by recommending that evaluations of complex interventions should include a detailed and structured reporting of implementation, including measures of the quality of implementation.

This raises the question whether researchers understand *what* is important to measure, and *how* the processes and contextual elements that influence an intervention can be evaluated. Cox et al. (2007), define process as “the flow of activities; essentially who did what, when, why, and to what effect” (p. 353). Nytrø, Saksvik, Mikkelsen, Bohle and Quilan (2000) conceptualize the term in a more specific way to refer to “individual, collective or management perceptions and actions in implementing any intervention and their influence on the overall result of the intervention” (p. 214). Thus, the specifics implementation activities and participants and actors’ perceptions are essential components of IPE reporting and for understanding the effects of an intervention.

Furthermore, in order for IPE to be more than anecdotal and informative, it has to be linked with the outcomes of the intervention. Yet, as highlighted by Murta, Sanderson, and Oldenburgh’s (2007) systematic review of stress management interventions, fewer than half of stress studies link process evaluation with outcome evaluation. In their review of 84 studies, they conclude that “the incomplete reporting of information relevant to process

## INTERVENTION PROCESS EVALUATION

evaluation makes it difficult to identify reliable determinants of effective intervention implementation or outcome” (p. 248). Murta et al. (2007) and Egan et al.’s (2009) reviews highlight the gaps in knowledge on how to report process evaluation and how to link this with intervention outcomes.

### **Intervention process evaluation: the need to develop theoretical models**

In order to effectively conduct process evaluation, Cox et al. (2007) recommend broadening the theoretical frameworks and using more eclectic methods to evaluate organizational interventions. Next, we provide some examples of this idea of broader frameworks that could be used to improve IPE by drawing from the field of organizational change and from psychological theory. We focus specifically on how change happens in individuals, and how to integrate this into our research designs for IPE.

Although organizational change activities and organizational interventions for stress differ in nature, parallels can be made between them. According to Martins (2011), the predominant models on the management of organizational change remain rooted in Lewin’s (1951)(1951) three-stage model of “unfreezing-changing-refreezing”. Although useful when organizations are stable, the model has been criticized for not taking into account the complex and continuing dynamics of change (Dawson, 1994). The same critique can be made of organizational interventions: the majority do not take into account the dynamic context and the complexities of the process by which interventions are developed and implemented (Murta et al., 2007). Below we suggest three ways towards developing the theoretical foundations of organizational interventions: understanding what can drive change, how to prepare for change, and the actual mechanisms of change (Karanika-Murray & Biron, in press).

### **Drivers of change**

Organizational interventions are typically voluntary: they are driven by a purposeful

## INTERVENTION PROCESS EVALUATION

effort initiated by the management to reduce stress and/or increase health, well-being and performance. Although legal requirements can initiate a change initiative, they are not always sufficient to elicit ownership from managers who are often responsible to implement interventions within their team (Biron et al., 2010). Indeed, as motivation theory shows, external regulation (e.g. enforcement of legislation) is not the most effective way to engage people in their actions with a full sense of choice (Ryan & Deci, 2000). Other drivers of change are discussed in the literature, including political motives (e.g. raising corporate image), organizational performance (e.g. decrease absenteeism and presenteeism), or strategic motives (e.g. attracting and retaining qualified employees) (Biron et al., 2009; Randall & Nielsen, 2012). Although these are important issues for understanding intervention implementation, they have not attracted research attention. Different as they are, these drivers necessitate different resources and are likely to be more or less favourable for implementing successful and sustainable interventions.

### **Readiness for change**

Readiness for change is multi-dimensional construct rarely studied in the context of stress interventions, although validated measures exists and could easily be integrated in intervention design (Armenakis, Bernerth, Pitts, & Walker, 2007; Randall, Nielsen, & Tvedt, 2009). Drawing from Armenakis' and Harris' (2009) work on organizational change, Tetric, Quick, and Gilmore (2012) highlight six themes in organizational change and organizational development theory that are relevant to organizational interventions for stress: (1) readiness to change, (2) participation of the change recipients in the change effort, (3) accurate diagnosis of the need for change, (4) taking a positive approach for creating readiness for change (5) strategically leading the change to support the key beliefs underlying the motivation to change, and (6) continuous assessment of reactions to the change effort. These

## INTERVENTION PROCESS EVALUATION

themes and key beliefs highlight important process issues in intervention implementation and should be studied more systematically in intervention research.

### **Mechanisms of change**

Karanika-Murray and Biron (in press) propose a number of possible mechanisms by which interventions may have an effect on the intended outcomes and which have been rarely, if at all, considered in the field of stress interventions. Three are briefly described below.

**Emotional contagion.** To an extent, individuals' emotions are affected by the emotions of those with whom they interact (Parkinson, 1995). Poor affective well-being (Daniels & Guppy, 1997) positive motivational states can both be transmitted between individuals working together. Furthermore, there is a cyclical and spiral relationship between employee stress and managerial support: support received by one's manager has a positive effect on their well-being, but also employees who are well tend to receive more support from their managers (Van Dierendonck, Haynes, Borrill, & Stride, 2004). Such cyclical and reinforcing interactions, emotional influence and contagion, can explain how and why individuals that participate actively in an intervention demonstrate better outcomes (Nielsen et al., 2007)

**Shared meaning.** Organizational culture conveys a sense of identity and share meaning among individuals interacting in the workplace (Deal & Kennedy, 1982). Organizational culture originates in shared meanings and via interaction among individuals that helps to develop shared norms, beliefs and values (Schein, 2004). In the context of work-related stress and well-being and organizational interventions, this concept of shared meaning has not been explored much. Notable exceptions are the work by Dollard et al. on psychosocial safety climate (PSC) (Dollard & Bakker, 2009; Dollard & Karasek, 2010) and enabling work environments (Karanika-Murray, under review). "PSC is an emerging construct that reflects the management value position and philosophy about work stress, and management priority



## INTERVENTION PROCESS EVALUATION

of regard for the psychological health of workers versus production imperatives of the organization” (Dollard, 2012, p.77). PSC is built through participation, communication, and consultation, and can explain why interventions are sometimes poorly implemented. Dollard (2012) highlights that it should be the target of interventions, especially in the early developmental stages of a project. “Enabling work environments (EnWE) are those that can facilitate the fulfilment of fundamental psychological needs [...], consequently enhancing motivation, adaptation and well-being. [...] EnWE describes how shared perceptions of individuals in the same workplace can have important individual outcomes” (Karanika-Murray & Michaelides, under review). Intervention researchers are unanimously conveying the idea that senior and middle management have to show strong commitment to the intervention and that workers must be involved in the process, thus reinforcing shared meaning of the intended actions among employees.

**Social identity.** Karanika-Murray, Biron, and Randall (2012) suggest that social identity theory can be used to determine the social conditions for successful interventions, such as explaining individuals’ compliance with intervention efforts as well as resistance to change. Not only social groups are important to individuals and help them define their personal identity (Ashforth & Mael 1989; Haslam, 2004), but also people tend to categorise others thus minimising within group differences and maximising between group differences (Bartunek, Lacey, & Wood, 1992; Fiske & Taylor, 2008). This provides motivation to act in terms of group membership and to actively engage or comply with the group’s activities. Karanika-Murray and Biron (forthcoming in 2013) suggest that when an individual internalises group membership as part of their identity, they will tend to be more open to change and to comply or even assume ownership of an action that agrees with their group. In practice, a range of prerequisites for successful interventions are possible, such as designing interventions in accordance with the group’s identity, goals and values, recruiting influential

## INTERVENTION PROCESS EVALUATION

individuals within the group to act as intervention champions, or strengthening perceptions of the leader as congruent with the group's identity (Karanika-Murray et al. 2012).

The literature on organizational interventions for stress remains underdeveloped regarding the theoretical foundations explaining *how* changes occur due to these interventions. Drawing from organizational and psychological theoretical frameworks can help to generate new theoretical developments in IPE. The following section describes the essential elements for developing and bridging gaps between theory, methods, and practice in IPE.

### **Divide between theory, research and practice?**

Anderson, Herriot & Hodgkinson (2001) detected a practitioner-researcher divide in industrial/organizational psychology and suggested ways to redress the balance between the two. We not only believe that such a divide exists in organizational intervention research, but would also extend this position to a divide among practice, theory and research.

Often interventions take place in the absence of an underlying theoretical framework, which is understandable in light of when the priority is the practical need to reduce employee stress and improve well-being and performance. Although scientific principles (e.g. evidence, objectivity, control, etc.) are an important part of intervention research, often psychological theory that helps to explain why and how interventions have their effects can be either neglected or assigned a secondary role. Practical examples of actions aimed at reducing stress have provided insights on how to design successful interventions and how to optimise their effects with the available resources (see examples and discussions in the volume by Biron et al., 2012a). However, the fact that we know that there are links between intervention elements (factor or variance models), but are not always able to answer the *how* and *why* questions (process models), indicates that theory may be the weaker link. The imbalance here is not just between research and practice, but among theory and research and practice. Of

## INTERVENTION PROCESS EVALUATION

course, some may argue for the proximity between theory and research. However, theorising is about conceptual understanding which can also take place in the absence of empirical evidence (for example, see earlier section on the mechanisms of change).

In intervention research, a balance also needs to be reached between practical relevance and methodological rigour. As Andersen et al. (2001) suggest, pragmatic science entails both high practical relevance and methodological rigour. This is where we hope to see intervention theory positioned: relevant for practice and equally rigorous methodologically. Recent developments in the field of IPE point towards the use of mixed methods as the way forward. Indeed, several examples of studies using mixed methods to evaluate the implementation process and effects of complex interventions can be found in occupational health psychology and stress prevention (Biron et al., 2010; Nielsen et al., 2006; Nielsen et al., 2007; Nielsen, Taris, & Cox, 2010; Randall et al., 2005), occupational health and safety (Baril-Gingras, Bellemare, & Brisson, 2012), crime prevention (Pawson, 2008; Pawson & Tilley, 1997; Ray, 2005), and public health (Roen, Arai, Roberts, & Popay, 2006; Steckler & Linnan, 2002). For example, quantitative methods can be used to evaluate the effects, and qualitative methods to describe the development, implementation, and participants' appraisals of the intervention (Bourbonnais, Brisson, Vinet, Vézina, et al., 2006; Bourbonnais, Brisson, Vinet, Vezina, et al., 2006; Brun, Biron, & Ivers, 2008; Nielsen et al., 2006). Both qualitative and quantitative data can also be used in various types of mixed methods designs (Tashakkori & Teddlie, 1998) to link process evaluation with outcome evaluation (Biron et al., 2010; Nielsen, Taris, et al., 2010).

What constitutes practical relevance and methodological rigour in the field of process evaluation of occupational health interventions? Relevance, as argued by Anderson et al. (2001), is an on-going negotiation process between stakeholders and researchers. What might constitute something relevant for senior management in an organization might not be as

## INTERVENTION PROCESS EVALUATION

relevant to its employees or to the researchers interested in the topic. Similarly, researchers interested in IPE might have some specific sets of questions in mind, which can be of little interest (or be in conflict with) to senior management. This can also be a politically-laden issue, as discussed by Rossi, Lipsey and Freeman (2000). As for methodological rigor, several authors (Cox, Taris, & Nielsen, 2010; Randall et al., 2005) have mentioned the impracticalities and difficulties of applying the natural science paradigm to the organizational context (Griffiths, 1999). Yet, there is a growing body of literature demonstrating how these difficulties, processes, and contextual issues can be taken into consideration in intervention design and implementation (Biron et al., 2012a; Biron, Karanika-Murray, & Cooper, 2012b; Karanika-Murray, under review; Nielsen et al., 2006; Nielsen & Randall, 2012a; Nielsen et al., 2007; Tvedt et al., 2009).

### **Bridging the gaps between research and practice in intervention process evaluation**

Following the observations we made on the state of research in intervention and specifically IPE, we present a series of elements distilled from recent and accumulating work in the area, consideration of which is important for bridging the gaps between research and practice. Some of the elements discussed here are presented in more detail in Biron et al. (2012a).

#### **1. Development of methods and tools**

In the last few years there have been notable changes in research methods and the development of needed measures that are essential for understanding the process and context for successful intervention implementation. Work on developing accurate and reliable tools available for assessing a range of intervention elements, for example, stakeholders' attitudes and readiness for change, perceptions and motives, uptake and awareness of the intervention (see Tvedt & Saksvik, 2012), is paramount for understanding how and when interventions work, replicating successful interventions, and developing process models of intervention

## INTERVENTION PROCESS EVALUATION

implementation. Research is under way on the development of evidence-based process and context evaluation models (Biron et al., 2012b; Dollard, 2012; Randall & Nielsen, 2012; Randall et al., 2009).

### **2. Multi-disciplinary and participatory approaches**

Multi-disciplinary approaches in this area are much needed, as they can help to cast light on both macro (e.g. restructuring, organizational change) and micro (e.g. ergonomics, health-related behaviours, individual differences) influences on stress and well-being, and capitalise and engage a range of necessary skills and resources for developing successful interventions. They can also help to enlist the commitment of major stakeholders to successfully implementing an intervention, including groups and agendas as diverse as an organization's human resources, senior management, occupational health, health and safety, and well-being teams (Baril-Gingras et al., 2012; Mellor, Karanika-Murray, & Waite, 2012). Participatory processes are crucial here. By involving different stakeholders and end-users in intervention design and implementation, participatory processes are essential for establishing commitment as they "increase employees' perceived ownership of change, thus helping to ensure implementation" (Roskam, 2009). It is, however, important that the stakeholders identified have clearly defined roles, that a coordinating group is established, there is wide participation in designing and implementing the intervention, and that support is secured at both local (i.e. the line manager; see Lewis et al., 2012) and organizational levels (especially senior management commitment). As highlighted by Dollard (2012) senior management view and philosophy on psychosocial issues can be referred to as the psychosocial safety climate (PSC) which is an important predictor of the success of the intervention and what should be the target of organizational-level stress interventions.

### **3. Tailored evidence-based interventions instead of off-the-shelf packages**

## INTERVENTION PROCESS EVALUATION

Use of off-the-shelf solutions is unlikely to fit the needs of the stakeholders and the context of organization (Randall & Nielsen, 2012). Any solution needs to be tailored to the specific organizational context, based on an understanding of the relationships between work and stress or well-being and between individuals and their organizations. It also requires an accurate diagnosis of the symptoms, problems and their root causes; assessment of stakeholders' attitudes and readiness for change; addressing any differences in perceptions and motives that can act as barriers to implementation; and monitoring the target groups' uptake and awareness of the intervention. Although off-the-shelf measures and solutions can be useful in some situations, in most cases these do not help to understand how and why the solution has worked or not, and therefore a tailored fit for purpose approach is most often appropriate (e.g. Biron et al., 2012b; Hesselink, Wieser, Den Besten, & De Kleijn, 2012; Randall & Nielsen, 2012) .

### **4. Use of multimodal comprehensive interventions that combine individual and organizational-level actions**

The importance of combining individual and organizational-level actions, which provide a primary, a secondary and a tertiary focus has been stressed by a range of scholars (Lamontagne, Keegel, Louie, Ostry, & Landbergis, 2007; Lamontagne, Noblet, & Spector, 2012; Mellor et al., 2012; Munz, Kohler, & Greenberg, 2001; Tetrick et al., 2012). Although these studies suggest or demonstrate that a combination of individual and organizational approaches tends to yield outcomes that are more successful than either approach on its own, there is still some uncertainty surrounding the mechanisms and the theoretical foundations for such effects. Bond, Flaxman, and Bunce (2008) provide some interesting suggestions on this issue, by combining an individual intervention (which aim to increase participants' psychological flexibility), with an organizational intervention (which aimed to increase job control). Their results indicated that although everyone benefited from the organizational

## INTERVENTION PROCESS EVALUATION

intervention, those who had increased psychological flexibility benefited more from it. Here, psychological flexibility provides the explanatory mechanisms to support the accumulated effects of combining a focus on both the individual and the organization. In practice, this also involves that it may be necessary to start the change process by intervening at the individual level, in order to avoid initiative fatigue/change fatigue in participants. Combining various levels of intervention is likely to improve the benefits observed. Whether interactive, additive, crossover or other mechanisms are involved in the effectiveness of such multimodal comprehensive interventions, is still to be ascertained.

### **5. A clear implementation strategy**

Any solution or action plan is only as good as its implementation. On-going monitoring of the implementation process, having specific, achievable, and measurable goals; allocation of roles and responsibilities; and clear communication plans are all essential elements of well-implemented interventions. As highlighted in Nielsen's and Randall's (2012b) process evaluation model, information should be obtained by mixed methods on the drivers of change, the roles of the key stakeholders such as consultants, middle managers, senior managers, and how employees were involved, and what type of information was provided about the intervention.

### **6. The importance of external forces**

External forces are instrumental for challenging and spurring change at the more local organizational level. As the Nordic and Dutch experiences of developing national standards for work-related stress and well-being have shown (Daniels, Karanika-Murray, Mellor, & van Veldhoven, 2012; MacKay, Palferman, Saul, Webster, & Packham, 2012; Tvedt & Saksvik, 2012), government-initiated regulation and enforcement can act as major stimulants for developing organizational responsibility, ownership, and a proactive approach to stress and well-being at work. This however has to be combined with a strong business case for

## INTERVENTION PROCESS EVALUATION

investing in employee well-being with strong governmental priorities and strategies (supported by legislation) and senior management initiatives (providing direction and tangible resources). Because prolonged external pressure may adversely affect organizations' motives for investing in employee health and well-being, external forces are important for initiating but not necessarily sustaining changes in attitudes, agendas and priorities.

One last point which has rarely been addressed in research is the sustainability of interventions and the appropriate time-lapse for interventions to be evaluated. Gilbert-Ouimet et al. (2011) conducted a study with three waves of measurement (i.e. baseline, 6 months, and 30 months). Their study was conducted with 1630 white-collar workers, where a risk assessment was followed by thorough documentation of the development and implementation phase. To document what interventions were implemented, focus groups with participants were conducted, in addition to interviews with key informants who each recorded their actions in a logbook. The logbooks included a description of the activity, the problem targeted, the administrative unit involved, the work organization factors targeted, as well as the degree of improvement expected from this activity. These logbooks were analyzed, which allowed identifying categories of interventions. Effectiveness evaluation showed that social support from co-workers, rewards, and psychological demands improved significantly after 30 months. This study uses an exceptionally long research design, which is rather rare. However, it is still unknown whether interventions have a durable and sustainable effect of time.

### **Conclusion**

Organizational interventions for stress are important not only for developing a healthy and productive workforce but also because business organizations are increasingly viewed as vehicles for achieving improvements in population health (Black, 2008; Dewe & Kompier, 2008). Yet, evidence demonstrating the effectiveness of organizational interventions is still



## INTERVENTION PROCESS EVALUATION

scarce, and often inconsistent (Graveling et al., 2008; Richardson & Rothstein, 2008; Ruotsalainen et al., 2006). Taking into account the process and context of the intervention can further our understanding as to why and how the intervention produced or failed to produce certain outcomes. With this paper we hope to make three contributions. Firstly, we examine how organizational-level stress and well-being interventions are influenced by elements relating to their development and implementation, namely IPE issues. Secondly, we articulate the relevant implementation process (and contextual) issues and illustrate how they can be taken into account to explain the success or failure of an intervention. Thirdly, we offers an embryonic answer to the recent call for more methodological reflexivity, considered theoretical models, broader frameworks, and more eclectic methods in this field (Biron et al., 2012a; Cox, Karanika-Murray, et al., 2007; Cox et al., 2010; Nytrø, Saksvik, Mikkelsen, Bohle, & Quinlan, 2000; Saksvik et al., 2002). The bulk of research in this field tends to focus on describing process issues influencing the implementation phase, but few studies have linked this type of data to outcomes or considered how early phases of the intervention can impact on its implementation. Despite several tools and guidelines readily available to practitioners (Biron, Brun, & St-Hilaire, forthcoming in 2013; Canadian mental health association, 2012; Great West Life, 2011; Health & Safety Executive, 2003), more emphasis needs to be put on theory development in order to capture the context and processes by which intervention changes occur.

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## INTERVENTION PROCESS EVALUATION

Table 1. Differences between summative and formative evaluation

	Formative evaluation	Summative evaluation
Purpose	Locate intervention program weaknesses in order to improve it	Document effectiveness of intervention program
Timing	Throughout the design, risk assessment, implementation phases	When some interventions have been implemented (generally 12 or 18 months after baseline measure)
Outcome	A prescription for revising the intervention program	A report documenting results and recommendations about program effectiveness.

*Note.* Adapted from Dick and Carey (1996)

Table 2. Documenting the context and evaluating the process at each phase of the intervention implementation process

	Documenting the context	Evaluating the process
1. Initiating and preparing for the intervention	<ul style="list-style-type: none"> <li>▪ Discrete Events and changes taking place which affect the intervention</li> <li>▪ Omnibus Motives (legal, economical, altruistic, political)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mental models (e.g. readiness to change, perceptions about the intervention)</li> <li>▪ Level of commitment to intervention from stakeholders</li> <li>▪ Scope of intervention project (whole organization/department/units)</li> <li>▪ What changes are needed</li> <li>▪ What resources are available</li> <li>▪ To what extent stakeholders buy into the needs for these changes</li> <li>▪ Type of risk assessment strategy (qualitative/quantitative/evidence-base/representative?)</li> <li>▪ Strategy and communication plan to diffuse information to participants throughout the project</li> </ul>
2. Designing actionable intervention plans	<ul style="list-style-type: none"> <li>▪ Alignment between interventions and organizational culture</li> <li>▪ Feasibility</li> </ul>	<ul style="list-style-type: none"> <li>▪ Level of consensus/conflict between participants regarding priorities</li> <li>▪ Participation of stakeholders in shaping the intervention</li> </ul>



- Opportunities to anchor intervention program within an existing corporate program
- Resources involved to translate the psychosocial risk diagnosis into concrete actions
- Involvement of all stakeholders
- Ongoing commitment of senior management
- Well defined roles
- 3. Implementing the intervention
  - Managers workload
  - Organizational changes torpedoing intervention
  - Change fatigue among stakeholders
  - Changes in project champion or senior management
  - Components of the interventions
  - Active ingredients (some interventions more popular/successful?)
  - Extent to which interventions are implemented vs received by participants
  - Quality of interventions delivered
  - Deviations from initial plan
  - Participation of employees during implementation
  - Managers' and employees' perceptions
  - Focus on one large vs several small steps changes
  - Well-defined roles
  - Tacit and informal organizational behaviour that may undermine the

- intervention, such as unresolved anxieties,  
passive sabotage
- Manager availability
- Use constructive conflicts to cope with  
change
- 4. Evaluating the intervention: process, context, and effects
  - Hindering and facilitating factors in the context influenced intervention (Omnibus/Discrete)
  - Cultural maturity (ability to learn from failure and readjust)
  - Potential for generalization to other contexts
  - Sustainability issues (can the effects last? Can the intervention be integrated into daily business?)
- Linking process and outcome evaluation:
  - Variations in time in exposure to psychosocial risks, mental health and well-being, or any other outcome
  - Subgroup analyses (e.g. were participants who benefited the most/least from the intervention more ready to change, more involved in shaping interventions, more exposed to interventions, identifying more strongly with the rest of the team, more positive about the intervention, sharing meaning about the significance of interventions?)

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\* Based on the risk management approach by Cox et al. (2001), and on process and context evaluation studies and models by Biron et al. 2009, Goldenhar et al. 2001, Nielsen and Randall 2012, Saksvik et al. 2002, Saksvik et al. 2007.