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Adapting to organizational change in a public sector high-reliability context: the role of negative affect and normative commitment to change

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Abstract

This study aims to investigate the impact of organizational change in a public sector high-reliability context. Drawing on conservation of resources theory, our theoretical model posits that change can be stressful and cause negative affective reactions toward the change, which undermine adjustment and post-change functioning. A quantitative case study was carried out on a Dutch air force squadron undergoing a significant organizational change, including the collection of three waves of survey data from squadron members. The data underwent analysis through a process of moderated mediation. Consistently with the theoretically derived hypotheses, results show that negative affect toward the change predicted important adjustment indicators, that is, higher levels of work role overload and work errors. Furthermore, we found that the detrimental effects of negative affect were mitigated by the level of normative commitment to change, that is, the felt obligation to provide support for the change. Overall, the study's intended contribution lies in its detailed examination of change dynamics in the specific context of public high-reliability organizations and its potential to inform theory and practice in that area.

Key words: organizational change; high-reliability organizations; conservation of resource theory; survey; commitment to change.

Introduction

Public organizations play a vital role in modern societies, and many of them are actively involved in ensuring citizen safety and wellbeing. In some public organizations, deviances from the optimal mode of operation and errors are acceptable or even tolerated to some extent as they may not result in significant negative consequences. However, such tolerance is not possible in high-reliability contexts, such as aviation or military operations, in which error or failure can cause loss of life or significant damage to property. To minimize the risk of errors, high-reliability organizations (hereinafter HROs) implement stringent safety measures, establish a strong safety culture, and employ highly trained personnel (Weick and Sutcliffe 2015). While the existing public administration literature provides considerable insight into the attributes and development of HROs (Boin and Schulman 2008; LaPorte and Consolini 1998; O'Neil and Kriz 2013), little is known about how they deal with organizational change, for example, the implementation of new technology, including shifting work processes and team structures. This gap is unfortunate, given that the efficacy of planned organizational change is highly context-dependent. Scholars have consistently stressed that public organizations differ from conventional organizations in ways that make the implementation of change uniquely challenging, for example, through higher levels of bureaucracy, the lack of market incentives, and heightened goal conflicts (By and Macleod 2009; Hughes 2011; Pettigrew, Woodman, and Cameron 2001). This complexity is further magnified in public HROs, as they must reconcile the dual imperatives of sustaining reliability and ensuring the delivery of essential services in the public interest.

While considerable attention has been paid to major public management reforms at the country or sector level (e.g., Pollitt and Bouckaert 2004; Reginato, Fadda, and Paglietti 2016), including the development of high-reliability systems (O'Neil and Krane 2012), the dynamics of how change is received and implemented at the organizational micro level in this field remain comparatively underexplored (Fattore, Iacovone, and Steccolini 2018; Higgs, Kuipers, and Steijn 2022; Kuipers et al. 2014). Existing studies in this field have typically focused on change management and broad measures of either support for or resistance to change (Dubois et al. 2014; Ritz et al. 2012; Thomas and Davies 2005; Van der Voet, Kuipers, and Groeneveld 2016), along with general indicators of adjustment such as job satisfaction and work engagement (Kiefer et al. 2014; van der Voet and Vermeeren 2017). There has been less emphasis on investigating more specific outcomes tailored to the type or domain of change. This includes, for instance, clinical outcomes during healthcare service changes (Aiken, Sochalski, and Lake 1997) or customer orientation and customer satisfaction in public service change (Korunka et al. 2007). This limited focus becomes even more conspicuous when addressing the micro-dynamics of organizational change within public HROs. A surprisingly overlooked question, particularly pertinent to that context, is: after a change is implemented, how do employees perform, especially in maintaining reliability standards? Furthermore, what coping resources help them manage negative reactions that may emerge throughout the change, enabling a more effective adjustment?

In the extensive body of research on responses to change, including negative reactions, several studies have underscored the significant impact of emotions or affect[1] in molding the overall experience and behavior of individuals adapting to change (Klarner, By, and Diefenbach 2011; Oreg et al. 2018). Affective reactions act as "relevance detectors" (Huy 2002, 34), focusing attention, and subsequently function as motivational forces that influence information processing, attitudes toward change, and ultimately, behaviors (Klarner, By, and Diefenbach 2011). In this study, we center our attention on negative affect, recognizing its widespread occurrence and critical relevance during periods of change. Even when those affected by change understand its benefits, feelings of discomfort are almost inevitable, given the uncertainty and potential risks to personal resources inherent in organizational change (Liu and Perrewé 2005). Negative affect tends to carry greater weight than positive one and, when left unaddressed, it is more likely expressed in attitudes and behaviors that undermine the goals of the change, for example, reduced trust in the organization and higher withdrawal and resistance behaviors (Fugate, Kinicki, and Prussia 2008; Huy 2002; Kiefer 2005). Furthermore, the experience of negative affect is depleting and has been shown to diminish cognitive performance (Brose et al. 2012), a crucial factor for HRO's efficacy.

Building upon this context, the primary objective of this study is to investigate the interplay of negative affect and coping resources during HRO change in the public sector and their relation to a key indicator of successful adaptation in high-reliability settings—work errors. This focus is particularly pertinent for our research as it captures the fundamental concern for failure prevention in HROs, where even minor errors have the potential to escalate into disastrous outcomes (Weick and Sutcliffe 2015). To achieve this, we conducted a case study of a Dutch air force squadron undergoing a large-scale organizational change. Drawing on conservation of resources (COR) theory (Hobfoll et al. 2018), we set up and test a theoretical model linking employees' negative affect toward the change during the implementation phase to subsequent work errors post-change. More specifically, our model proposes that negative affect is depleting, resulting in role overload and, consequently, heightened error rates. Furthermore, we extend our theoretical framework by proposing that a distinctive coping resource available to employees in public HROs against the adverse impacts of negative affect is normative commitment to change, that is, the felt obligation and duty to support the change (Herscovitch and Meyer 2002).

With this, our research seeks to make a number of contributions to the public administration literature. First, by studying change reactions in a public HRO, we seek to continue the momentum of context-specific organizational change research at the microlevel in public organizations (Van der Voet et al. 2016). Public HROs merit special attention as it is critical to ensure that change recipients in such a context adapt as efficiently and effectively as possible to the new processes and systems in order to minimize risk and maintain operational reliability, while serving the public interest. By studying negative affect toward a change and its detrimental consequences, we expand our understanding of the people side of public administration organizational change and contribute to the broader conversation in the public administration literature on the distinct role affective reactions may play in the outcomes of public administration employees. Past studies have researched affective aspects of public sector organizations, most notably emotional labor and how public sector employees manage emotions during citizen contact events (Hsieh et al. 2011; Levitats and Vigoda-Gadot 2017; Levitats, Vigoda-Gadot, and Vashdi 2019). However, to our knowledge, there appears to be a gap in the literature concerning the role of negative affect as such and its consequences, especially within the framework of organizational change. Furthermore, by theorizing normative commitment to change as a uniquely efficient buffer against the detrimental effects of negative affect toward change, we challenge current tendencies in the literature to prioritize affective commitment, that is, the perceived need and appropriateness of the change, as the primary driver of efficacious change and adaption in public settings (Morin et al. 2015; van der Voet, Steijn, and Kuipers 2017). This underscores the importance of recognizing public HROs as a unique context, where change recipients possess distinct coping mechanisms for change.

Public HROs

Our research positions itself at the nexus of traditional HRO research and public administration. There exists no specific literature strand focusing exclusively on public HROs. However, studies delving into their social and managerial dimensions tend to align with public administration literature, given that HROs frequently relate to the public sector (LaPorte and Consolini 1991). A significant proportion of these organizations, including nuclear power plants, public health systems, and air traffic control systems, are managed by public servants and subject to regulatory scrutiny. Yet, with numerous HROs being privately owned and managed, distinct differences emerge compared to their public counterparts, potentially influencing their approach to organizational change.

While the focus of conventional HROs is on avoiding accidents or potential disasters, they typically have stakeholders such as investors, shareholders, and private owners. Their accountability is primarily to these stakeholders as well as industry-specific regulatory bodies. On this basis, their decision-making is predominantly influenced by risk management strategies and technical expertise to prevent accidents. While public HROs share the preoccupation with failure, they grapple with the additional challenge of balancing their operational goals and the stringent standards of high reliability with their mission of benefiting the public interest. That means their decisions and practices are obliged to align with the broader public interest and frequently entail democratic procedures and governmental oversight. With regard to decision-making, public HROs therefore consider not only

[1]We acknowledge the distinct meanings and differences between the terms "emotion" and "affect" in the extant literature. "Emotion" typically refers to specific, identifiable feelings in response to stimuli, whereas "affect" is a broader term that encompasses both emotions and moods, indicating an individual's overall feeling state (Elfenbein 2007). Despite these distinctions, it is noted that in the organizational change literature, these terms are often used interchangeably to denote individuals' positive or negative feelings toward change (Kiefer 2005; Klarner et al. 2011; Liu and Perrewé 2005). We primarily employ the term "affect" to acknowledge its broad scope, encompassing various feelings of pleasure or displeasure (Oreg et al. 2018). However, we occasionally use "emotional" or "feelings" interchangeably, especially in contexts where it reflects their commonplace usage in organizational change research.

technical aspects but also social and political factors, such as public opinion, government policies, and budget constraints. Any difficulties or deviations from desired outcomes can attract media attention and result in political repercussions due to the heightened public scrutiny they face. This unique backdrop makes public HROs a captivating subject for exploring organizational change dynamics.

Theoretical framework and hypothesis development

Negative affect during change

The recognition of affective reactions displayed by change recipients in response to organizational change is well established in the existing literature (Klarner, By, and Diefenbach 2011; Liu and Perrewé 2005; Oreg et al. 2018). Affect plays a pivotal role in this context, as it holds significant sway over individuals' attitudes toward the change and subsequent behavioral outcomes. A considerable portion of this research has centered on negative affect, given its heightened impact and implications for desirable outcomes (Fugate, Kinicki, and Prussia 2008; Kiefer 2005). In what follows, we draw upon COR theory to expound on the development of negative affect in response to change and their consequences.

According to COR theory, humans strive to build, protect, and advance their personal resources (Hobfoll et al. 2018). Resources are defined broadly as objects, conditions, personal characteristics, and other things that people value and that facilitate goal achievement (Halbesleben et al. 2014; Hobfoll et al. 2018). From the perspective of this theory, organizational change can be a stressful event which requires considerable effort and redirecting personal resources. Even if change recipients recognize the need for change, it typically includes the threat or actual loss of valued resources. These can include smooth working conditions, routines and familiarity, status, a sense of efficacy and competence, organizational respect, etc. (Jundt and Shoss 2023; Rafferty and Griffin 2006). The situation can be further compounded if the change implementation process is perceived as flawed, particularly in instances of poor communication, insufficient support, or limited opportunities for feedback. To the extent change recipients feel thwarted in their attempts to obtain and retain valued resources, the change increasingly becomes associated with negative affect (Fugate, Prussia, and Kinicki 2012; Kiefer 2005; Liu and Perrewé 2005). These negative affective reactions are likely to impede adaptive performance in terms of both adjusting existing routines and expertise to the changed requirements, and developing new strategies and skills (Lang and Bliese 2009; Niessen and Jimmieson 2016).

The effect of negative affect on work errors through work role overload

HROs, by their very nature, exhibit a profound concern and focus on failure and errors. While some organizations can ignore or circumvent errors or deviations, this is not the case in HROs. Due to the intricate nature of their operations, even small work errors can snowball into significant and potentially catastrophic consequences (Weick and Sutcliffe 2015). Consequently, this unwavering focus on safety and error prevention persists throughout planned change initiatives within HROs (Lofquist, Greve, and Olsson 2011). Against this background, the present study centers on work error rates as a key indicator of successful adjustment to the new job situation following the completion of the change process in an HRO.

There is consistent evidence in the literature that negative affective experiences are related to lower levels of cognitive performance (e.g., Brose et al. 2012; Ellis et al. 1997). Accounting for this effect, researchers have commonly invoked dual-task perspectives, arguing that negative affect in particular depletes available attentional resources for performing other tasks (Ellis 1988). This paradigm has also been used to explain performance variability in the workplace (Beal et al. 2005), including adaptive performance during organizational change (Niessen and Jimmieson 2016). As negative affect disrupts attention and effort (Brown, Westbrook, and Challagalla 2005), it is plausible that change recipients with higher negative affect toward the change will find it harder to adjust to the new conditions, reflected in more work errors. Empirical support for this notion comes from research linking the experience of negative affect at work to heightened instances of cognitive lapses and subsequent workplace accidents (Petitta et al. 2019).

However, we argue that the connection between negative affect and work errors is not best understood as a direct effect; instead, there is likely an intervening factor, such as some form of depletion and work stress. As a mediator in this relationship, we suggest that work role overload plays a crucial role. Work role overload, a well-studied form of work stress, refers to the experience of lacking sufficient resources to meet the various demands of one's work domain (Eatough et al. 2011). We find this mechanism particularly fitting within the framework of COR theory, as negative affect's depleting nature may initiate a downward spiral, where perceived resource threats or loss further erode remaining resources (Hobfoll et al. 2018). For instance, as negative affect impairs cognitive functioning, resulting difficulties with concentration and decision-making efficiency can slow down work pace and productivity, leading to a backlog of tasks. Similarly, individuals experiencing negative affect are more likely to perceive situations as threatening, making work challenges seem more daunting. These experiences further impair the ability to adjust existing routines and acquire new skills, promoting employees' feelings of being overwhelmed in their work roles. The context of HROs, with its inherent emphasis on failure and deviations from desired actions, likely exacerbates this effect. Research supports that environments characterized by performance pressure and strict control are associated with higher rates of work role overload (Jensen, Patel, and Messersmith 2011).

In turn, when change recipients feel overloaded, they often experience heightened stress levels or fatigue, fueling the downward spiral of impaired cognitive functions such as memory, focus, and decision-making. Accordingly, it has been consistently shown that work role overload not only negatively impacts employee wellbeing (Shultz, Wang, and Olson 2010), but also serves as a critical precursor to cognitive failure and errors (Hofmann and Stetzer 1996; Wallace and Chen 2005), especially in high-reliability contexts (Björkstén et al. 2016; Helmreich 2000; Hofmann, Jacobs, and Landy 1995). We thus hypothesized the following:

Hypothesis 1: The positive relationship between change recipients' negative affect toward the change and work errors is mediated by their experience of work role overload.

The moderating role of normative commitment to change

Due to the inherent ambiguity and potential resource threats that come with organizational change, negative feelings cannot be completely avoided (Liu and Perrewé 2005). Therefore, we ask the question, what resources employees can put up against the detrimental effects of negative affect. From a theoretical viewpoint it makes sense to postulate a mechanism related to affect regulation, in particular how change recipients influence how they experience and express their affect (Gross 1998). Yet, a caveat to this presumption is that affect regulation itself can be cognitively costly and even further deplete cognitive resources (Baumeister and Alquist 2009). Studies have shown, however, that regulatory processes that redirect attention to the more task-related aspects of the situation are more effective in mitigating negative affect and its consequences (Gross 1998; Niessen and Jimmieson 2016). Moreover, it is plausible that, to be effective, the target of the regulatory resource should match the target of the negative affective experiences, that is, the organizational change. Against this backdrop, we argue that commitment to organizational change, specifically its normative facet (Herscovitch and Meyer 2002; Jaros 2010), offers such a regulatory resource that is both target-specific and suitable to help change recipients move attention away from the affective experience, and to focus more on the task-related aspects of the change. Figure 1 summarizes our theoretical model.

Commitment to change has been defined as a motivational force or mindset that "binds an individual to a course of action deemed necessary for the successful implementation of a change initiative" (Herscovitch and Meyer 2002, 475). From a COR theory perspective, this means that individuals who are committed support the change through targeted investment of their resources (Halbeslebe, Wheeler, and Buckley 2008). This is in line with previous research suggesting that commitment can be a powerful coping resource, providing meaning and purpose during stressful situations (Glazer and Kruse 2008; Lu, Siu, and Lu 2010).

Rooted in the three-component model of organizational commitment (Allen and Meyer 1990), Herscovitch and Meyer (2002) framed commitment to change around three dimensions. *Normative commitment to change* describes a sense of obligation or duty to provide support for the change. *Affective commitment to change* describes the desire to support the change based on its perceived benefits or value, that is, to what extent employees think the change is needed. The third dimension is *continuance commitment to change* which describes the perceived requirement to support the change because the personal costs of not doing so are too high. We argue that of these three commitment components, normative commitment to change is uniquely suited to help change recipients in a public HRO focus their efforts on the tasks at hand, thus mitigating the negative implications of negative affect toward the change. In contrast to the other commitment dimensions, normative commitment can be experienced as a moral obligation (Meyer and Parfyonova 2010), which in the case of organizational change implicates that the change must be supported because it is the right thing to do (Meyer and Hamilton 2013). Given that the motivational potency of moral values exceeds that of general values or mere hedonic preferences (Skitka et al. 2021), change recipients scoring high (vs. low) on normative commitment to change are more likely to "fight" their negative feelings and to concentrate on the task for the sake of the higher cause. This is especially true for change recipients in a public HRO, because there is a much stronger concern for safety, security, and wellbeing of key stakeholders than in conventional organizations. Support for this idea comes from an adjacent concept. Steijn and Leisink (2006) have argued that normative commitment is, to some extent, akin to public service motivation, that is, the motivation to perform meaningful public service, including a sense of calling, and the willingness to put civic duty before self-interest (Kim et al. 2012). Several studies have shown that public service motivation is positively related to work motivation and effort (Ritz et al. 2016). Moreover, it is thought that public organization employees with higher levels of public service motivation cope with organizational stressors more effectively, because they feel that dealing with those stressors serves a higher purpose (Bakker 2015). Additionally, normative commitment can facilitate social support and communication with colleagues who share the commitment to change, which can also help individuals manage negative affect, leading to better adjustment. On this basis, we made the following prediction:

> *Hypothesis 2:* Normative commitment to change moderates the positive relationship between negative affect toward the change and work role overload in such a way that higher normative commitment to change mitigates the effect.

Implicit to the prediction that normative commitment buffers the relationship between negative affect and work role overload is the assumption that it will conditionally influence the indirect effect of negative affect on work errors—thereby demonstrating a moderated mediation pattern. Specifically, we propose that the strength of the mediated relationship through the pathway of role overload varies depending on the felt level of normative commitment to the change. It is expected that when a higher level of negative affect is coupled with higher normative commitment, the indirect effect of negative affect on work errors will be less pronounced. This is because a strong normative commitment to change

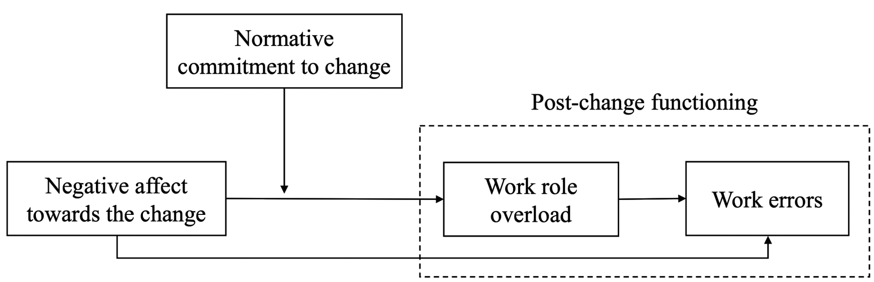

Figure 1. Theoretical model.

directs resources toward alleviating the sources of role overload, thereby constraining its repercussive effect on errors. Therefore, we specified the following hypothesis:

> *Hypothesis 3:* The mediating effect of work role overload in the relationship between negative affect toward the change and work errors is moderated by normative commitment to change. The higher the level of normative commitment to change, the weaker the mediation effect will be.

Despite the dominating role of normative commitment to change in our theoretical model, there is some plausibility to the idea that the perceived value of a change and its intended outcomes (affective commitment to change) as well as cost-based attachment to the change (continuance commitment to change) may to some extent have buffering effects as well, through helping employees redirect their attention more toward task-related aspects of the change. However, in terms of affective commitment this is not necessarily true for perceptions about the change process and how the change is executed. To the extent change recipients may have negative feelings toward the change process and related means, affective commitment may not be effective in changing the attentional focus and buffering negative affect consequences. This is different from normative commitment to change, in which the felt moral obligation includes proactive effort and work toward the change as a whole. In terms of continuance commitment to change, the available evidence indicates this commitment dimension is least conducive to change support or even negatively related to it (Bouckenooghe, Schwarz, and Minbashian 2015). As continuance commitment can to some extent reflect a sense of being trapped and having no alternatives (Meyer and Hamilton 2013), it may even reinforce attention to negative feelings rather than deploying it. On the other hand, in the context of a public HRO, continuance commitment may overlap with the meaning of normative commitment in that jeopardizing the higher purpose is perceived as too costly. Based on these considerations, it is difficult to propose a specific manner by which affective and continuance commitment would serve as effective regulatory mechanisms in response to negative affect. Hence, specific predictions concerning the moderating influence of these commitment dimensions were not advanced, but we incorporated them as potential moderating variables in our model on an exploratory basis.

Method

In this research, we employ a quantitative case study approach. This methodology involves an in-depth exploration of a single case, harnessing quantitative data for analysis (Gerring 2004). This approach is especially apt for our research for two primary reasons. Firstly, it permits us to scrutinize our focal variables within a specific and bounded organizational change initiative in a public HRO. Secondly, by analyzing a significant group of change recipients within this unique context, we strengthen our ability to uncover deeper insights into the micro-dynamics of change, providing a clearer understanding of how individuals respond to and maneuver through transitions.

Case selection

Data for this study stem from surveys administered to employees from an air base of the Royal Netherlands Air Force (RNLAF). Military air bases, including this one, can be considered representative examples of public HROs, making it a suitable case for our research (Seawright and Gerring 2008). The nature of their operations embodies high risks, necessitating an incessant emphasis on safety and the minimization of errors. At the same time, the military, encompassing the air force, is a public institution. This means the administration and management of its resources, personnel, and operations fall under the broader umbrella of public administration (Jefferies 1977).

The personnel stationed at this base had entered a major change process involving the introduction of a new type of aircraft and related operations rules and procedures. Specifically, the RNLAF had made the decision to replace its aging fleet of F-16 fighter jets with the newer and more advanced F-35 jets. This transition is part of a larger effort by the Netherlands to modernize its military capabilities and ensure readiness for future threats.

Integrating the F-35 into operations is recognized as a highly complex task, laden with profound ramifications for staff development, team coordination, and operational safety (Bjerke and Valaker 2022; Fauske and Hoff 2016). While the need for this technological change is generally acknowledged and received positively among air force members, those adapting to it can still experience considerable stress associated with the transition. In the survey we employed, respondents were given the opportunity to provide comments for other squadrons undergoing the same changes. Although these comments were not systematically collected to specifically address stress and affective reactions, they provide valuable context for understanding the reference points of the negative affect reported. Out of the seventy-two statements left, a significant portion revealed dissatisfaction with specific aspects of the change process. Key areas of concern highlighted by respondents include insufficient training, inadequate clarity in communication and information sharing, a perceived lack of support and proper infrastructure, as well as the intense pressure and rapid pace of the changes being implemented. This is compounded by the need to operate the old and the new systems in parallel for an interim during the transition, which significantly increases the level of operational complexity.

The total duration to complete the transition at the particular airbase we studied was three years. Taken together, this unique juxtaposition positions the RNLAF air base as a well-suited case for studying the intricacies of organizational change in public HROs.

Sample and procedures

Three personalized surveys were created and distributed among all potential participants at three different points in time. All surveys began with an introductory letter assuring that participation in our study was strictly voluntary and that all responses were confidential. The first two measurement points were approximately one and a half years into the change and focused on respondents' negative affect and commitment to change. This way, we ensured recipients' responses were based on extensive engagement with the ongoing change. To reduce the risk of common method bias, the timing of the two measurement points was separated (Conway and Lance 2010; Jakobsen and Jensen 2015). At Time 1, participants rated their negative affect toward the change and provided personal information. Approximately four weeks later, at Time 2, respondents were asked to rate their commitment toward the change. The third survey was administered approximately one and a half years later, three months after the change project had been completed, and focused on the focal adjustment measures, that is, work role overload and error rates.

Out of 300 eligible change recipients, 218 agreed to participate in our research and were invited to take the first survey. Out of these, 176 provided valid responses. At Time 2, 157 responses were recorded and at Time 3, 136 responses were received. After removing missing and incomplete data within the dataset, 120 responses from all measurement points could be matched, resulting in a final response rate of 40 percent. The majority of respondents were male (87.5 percent), which reflects the typical sex distributions in the Dutch military context. The reported average age was 38.62 years[2] (SD = 10.62). The reported mean tenure was 16.97 years[3] (SD = 11.08). In terms of education, 18 percent of the respondents finished secondary education as their highest education level, 56 percent finished post-secondary vocational education, and 26 percent obtained a University degree[4].

Measures

All materials related to the measurements are provided as online supplementary material. To assess respondents' *negative affect toward the change* (Time 1), the five-item negative affect subscale taken from the Positive and Negative Affect Schedule (PANAS) Short Form (Mackinnon et al. 1999) was used. Respondents were presented with items about negative affect (e.g., afraid, upset) and then instructed to indicate the extent to which they feel this way in relation to the change. The response choices ranged from 1 (very slightly) to 5 (extremely).

Normative commitment to organizational change (Time 2) was measured with six items from Herscovitch and Meyer (2002). Sample items were "It would be irresponsible of me to resist this change" and "I feel a sense of duty to work toward this change." Ratings were made on a 7-point Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Work role overload (Time 3) was captured with a single item: "I cannot ever seem to catch up at work." The validity of this metric is well-supported in the literature (Fisher, Matthews, and Gibbons 2016). Responses were given on a 7-point Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Work errors (Time 3) were measured with six items taken from Farnese et al. (2022). Respondents were asked to rate the extent to which they made specific errors (e.g., forget to perform a task or use an improper procedure) during the past three months (since the change has been completed). Responses were anchored in a 6-point Likert scale, ranging from 1 = *never or almost never* to 6 = *very frequently*.

Control variables.

To enhance the robustness of our findings, we incorporated several control variables[5] to mitigate potential alternative explanations, as suggested by Spector (2019). First, recognizing that some individuals naturally adapt to change more effectively, we accounted for proactive personality. Employees with this trait often show more initiative, seek out opportunities, and persevere in their efforts to bring about meaningful change (Seibert, Crant, and Kraimer 1999), resulting in improved task and job performance (Crant, Hu, and Jiang 2016). This variable was measured in our initial survey at Time 1, using the 5-item short version of Seibert et al.'s (1999) proactive personality scale (Janssen, Schultze, and Grötsch 2017). A sample item was "Wherever I have been, I have been a powerful force for constructive change." Second, it is conceivable that change recipients' overload and work errors could relate to the degree of confidence employees have in their capabilities to undertake the tasks necessitated by the change (Winter, Mikkelsen, and Skov 2022). We incorporated five items taken from Holt et al. (2007) to assess this at Time 2 (sample item: "I feel I can handle implementing this change with ease"). Third, we also factored in error rates from earlier phases of the change, using the work error scale by Farnese et al. (2022) at Time 2. This was to determine if negative affect toward the change is related to error rates after the change, even when considering previous error rates[6]. Finally, as discussed in the theory section, we included affective and continuance commitment to change as potential competing moderator variables, using the respective sub-scales from Herscovitch and Meyer (2002). Sample items were "I believe in the value of this change" (affective commitment) and "I have no choice but to go along with this change" (continuance commitment). Responses were given on a 7-point Likert scale, with endpoints being 1 (*totally disagree*) and 7 (*totally agree*). The same format was used for the proactive personally and change efficacy measures. For work errors, the same 6-point Likert scale as at Time 3 was used (ranging from 1 = *never or almost never* to 6 = *very frequently*).

Results

Measurement issues

Prior to testing our hypotheses, we examined whether our measurement model was appropriate. Therefore, we conducted confirmatory factor analysis (CFA) using the lavaan package in R (Rosseel 2012), and tested a series of theoretically viable models. In all models, items were used as manifest indicators. To evaluate differences in model fit, we focused on the change in chi-square. The results of this procedure are reported in Table 1, showing that the fit of all alternative models was inferior to that of the predicted measurement model, treating our focal variables (negative affect, the three commitment to change facets, workplace errors, and work role overload) as separate factors (Model 1).

[2]Four participants did not indicate their age.

[3]Twelve participants did not indicate their tenure.

[4]Two participants did not indicate their educational level.

[5]It is important to acknowledge the cautionary approach taken toward using sociodemographic variables (e.g., age, gender, and tenure) as statistical controls in this study. Systematic evidence on the influence of demographics in organizational change is limited. Previous research has produced inconsistent findings and generally shown no significant association between basic demographics and explicit change reactions (Vakola, Armenakis, and Oreg 2013). Even studies specifically examining sociodemographic factors and change reactions have found weak and occasionally counterintuitive relationships, such as older employees showing less resistance to change (Kunze, Boehm, and Bruch 2013). Due to the absence of compelling theoretical justification, we chose not to include sociodemographics as controls in order to enhance the interpretability of results (Becker et al. 2016). Nonetheless, it is important to note that incorporating these variables into our analysis does not significantly alter the observed relationships and outcomes.

[6]We wish to note that we were unable to measure work errors at Time 1, leading to our ability to control for work errors only at Time 2. Similarly, work role overload was measured only at Time 3. Consequently, the approach we have taken represents the most feasible compromise to account for prior levels of our outcome variables of interest. Future research would gain from incorporating these variables at Time 1 to enhance understanding and control of these dynamics.

Table 1. Comparison of measurement models.

Model	Description	$\chi^2_{(df)}$	$\chi 2/df$	CFI	RMSEA	SRMR	$\Delta\chi^2_{(df)}$
Model 1	6-factor model	$514.849_{(391)}^{***}$	1.316	.920	.051	.073	
Model 2	4 factors (NC2C, AC2C, and CC2C merged)	$844.668_{(400)}^{***}$	2.111	.708	.096	.118	$329.819_{(9)}^{***}$
Model 3	5 factors (NA and NC2C merged)	$645.896_{(396)}^{***}$	1.631	.836	.073	.098	$131.047_{(5)}^{***}$
Model 4	5 factors (NA and AC2C merged)	$690.865_{(396)}^{***}$	1.744	.806	.079	.102	$176.016_{(5)}^{***}$
Model 5	5 factors (NA and CC2C merged)	$677.022_{(396)}^{***}$	1.709	.816	.077	.095	$162.173_{(5)}^{***}$
Model 6	5 factors (NA and work role overload merged)	$539.800_{(395)}^{***}$	1.366	.905	.055	.079	$24.951_{(4)}^{***}$
Model 7	5 factors (NC2C and work role overload merged)	$552.430_{(395)}^{***}$	1.398	.897	.058	.085	$37.581_{(4)}^{***}$
Model 8	5 factors (AC2C and work role overload merged)	$551.423_{(395)}^{***}$	1.396	.897	.057	.083	$36.574_{(4)}^{***}$
Model 9	5 factors (CC2C and work role overload merged)	$553.147_{(395)}^{***}$	1.414	.896	.058	.085	$38.297_{(4)}^{***}$
Model 10	1-factor model	$1{,}241.579_{(405)}^{***}$	3.065	.451	.131	.157	$726.730_{(14)}^{***}$

Note: $N = 120$; NA = negative affect toward the change; NC2C = normative commitment to change; AC2C = affective commitment to change; CC2C = continuance commitment to change.
$^{***}P < .001$.

Table 2. Means, standard deviations, and correlations.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Proactive personality (T1)	5.18	0.68	(.72)								
2. Change efficacy (T2)	5.56	0.92	.11	(.77)							
			(.214)								
3. Work errors (T2)	2.88	0.90	.04	−.27	(.83)						
			(.654)	(.003)							
4. Negative affect (T1)	1.28	0.42	.12	−.29	.18	(.78)					
			(.185)	(.001)	(.046)						
5. Affective C2C (T2)	5.65	1.05	−.02	.52	−.01	−.16	(.94)				
			(.812)	(<.001)	(.947)	(.083)					
6. Continuance C2C (T2)	3.71	1.22	−.09	−.25	.23	.25	−.29	(.83)			
			(.305)	(.007)	(.011)	(.006)	(.001)				
7. Normative C2C (T2)	4.71	0.86	.09	.38	−.10	.05	.26	.15	(.67)		
			(.343)	(<.001)	(.285)	(.612)	(.004)	(.101)			
8. Work role overload (T3)	2.75	1.66	.04	−.26	.20	.35	−.12	−.05	−.05	(-)	
			(.673)	(.004)	(.032)	(<.001)	(.185)	.591)	(.584)		
9. Work errors (T3)	2.97	0.80	.03	−.23	.67	.19	−.07	.18	.05	.40	(.82)
			(.709)	(.011)	(<.001)	(.042)	(.432)	(.047)	(.599)	(<.001)	

Note: $N = 120$; C2C = commitment to change. Coefficients are followed by their significance levels (*P*-values) in parentheses. Coefficient alpha reliabilities are displayed along the diagonal.

Hypothesis testing

Table 2 lists the means, standard deviations, correlations, and reliabilities for the study variables.

To test the hypotheses under investigation, we followed the recommendation of Hayes et al. (2017) and used path modeling to specify the predicted main and interaction effects. All analyses were performed using the PROCESS macro in SPSS (Hayes 2018). To ensure robustness, we ran these analyses both with and without the inclusion of control variables (Becker et al. 2016). The results showed consistent patterns across these variations, with only minor discrepancies observed. Notably, among the three control variables, only T2 work errors emerged as having a significant statistical effect. Therefore, to facilitate clarity and ease of interpretation, we only include T2 work errors among the control variables in our results presentation.

In the first step, we tested the proposed mediation model, using the PROCESS macro (Model 4). The analysis revealed that work errors were predicted quite well from negative affect toward the change, work role overload, and T2 work errors, with adjusted $R2 = .53$, $F(3, 116) = 43.436$, $P < .001$. Negative affect toward the change had a significant and positive statistical effect on work role overload ($b = 1.30$, $P < .001$), which in turn was positively related to work errors ($b = 0.14$, $P < .001$). While T2 work errors were not associated with work role overload, they were positively related to T3 work errors ($b = 0.55$, $P < .001$). The indirect effect of negative affect on work errors through work role overload was significant ($ab = .18$, 95% CI [0.06, 0.38]).[7] Thus, Hypothesis 1 was supported.

[7]When running the analysis without including T2 errors as a covariate, the effect of work role overload on T3 errors was $b = 0.18$, $P < .001$, and the indirect effect of negative affect on work errors via work role overload was $ab = .25$, 95% CI [0.09, 0.51].

Table 3. Results for estimated coefficients of the moderated mediation model.

Predictors	*b*	*SE*	*P*	95% CI (LL, UL)
Mediator: work role overload (T3)				
Work errors (T2) (control)	0.27	.16	.0812	(−0.03, 0.58)
Negative affect toward the change (T1)	2.12	.38	<.001	(1.37, 2.86)
Normative C2C (T2)	−0.04	.16	.7756	(−0.36, 0.27)
Negative affect × Normative C2C	−1.21	.51	.0181	(−2.21, −0.21)
Continuance C2C (T2)	−0.23	.12	.0458	(−0.46, −0.004)
Negative affect × Continuance C2C	−0.64	.27	.0202	(−1.18, −0.10)
R^2	.27		<.001	
F	7.04		<.001	
ΔR^2	.10**		<.001	
Outcome: work errors (T3)				
Work errors (T2) (control)	0.55	.06	<.001	(0.44, 0.67)
Negative affect toward the change (T1)	−0.05	.13	.6717	(−0.31, 0.20)
Work role overload (T3)	0.14	.03	<.001	(0.07, 0.20)
R^2	.53		<.001	
F	43.43		<.001	

Note: N = 120. All coefficients are unstandardized; C2C = commitment to change; CI = confidence interval; LL = lower limit; UL = upper limit; Bootstrap sample size = 5,000; ΔR^2 refers to the change in R^2 through the inclusion of the interaction terms.

Next, we used the PROCESS macro (Model 7) to test the proposed moderation and moderated mediation effect specified in Hypotheses 2 and 3. While the focus was on the moderating role of normative commitment to change, we also accounted for potential moderating effects pertaining to affective and continuance commitment to change. To this aim, we first conducted a separate analysis for each commitment to change type. In line with our prediction, this procedure revealed that the interaction of negative affect and normative commitment to change was significant and negative in predicting work role overload (b = −1.56, P = .0024). While we found a similar pattern for the negative affect × continuance commitment to change interaction (b = −0.81, P = .0028), the interaction term pertaining to affective commitment to change was not significant (b = 0.15, P = .644).

On this basis, we proceeded with our hypothesis testing by including normative and continuance commitment to change simultaneously[8] as first-stage moderators in our analysis. The results of this procedure are reported in Table 3, showing that the interaction between negative affect and normative commitment to change remained significant (b = −1.21, P = .0181), lending support to Hypothesis 2. Furthermore, also the interaction term pertaining to continuance commitment to change remained significant (b = −0.64, P = .0202).

To facilitate interpretation, we plotted the obtained moderation patterns using the Johnson–Neyman procedure (Lin 2020). Figures 2 and 3 depict the regions of significance, identifying the specific range of values of the moderator variables (i.e., normative and continuance commitment to change) for which the interaction effect is statistically significant. Figure 2 shows that the relationship between negative affect and work role overload increases more strongly when normative commitment to change is low. In turn, when normative commitment to change is high (>5.27), the effect on work role overload dissolves. A similar pattern was found for continuance commitment to change, although the moderating effect was weaker (fig. 3). The effect of negative affect on work role overload became insignificant when continuance commitment to was high (>5.20).

Regarding the proposed moderating effect of normative commitment to change on the indirect effect of negative affect on work errors via work role overload, the index of moderated mediation was negative and significant (index = −.17; 95% CI = [−0.47, −0.007]).

This indicates that higher levels of normative commitment to change weaken the indirect effect of negative affect on work errors through work role overload (Figure 4). Thus, Hypothesis 3 was supported.

The results for continuance commitment to change presented a similar trend. When analyzed independently, without the simultaneous consideration of normative commitment, the index of moderated mediation was significant (index = −.11; 95% CI = [−0.23, −0.01]). Yet, when continuance commitment to change was analyzed alongside normative commitment, the moderated mediation index became non-significant (index = −.09; 95% CI = [−0.21, 0.007]). This pattern highlights the dominant role of normative commitment to change in our context.

Discussion

This study aimed to understand how employees in a public sector HRO adjust to organizational change and mitigate the detrimental effects of negative affect toward such change. Invoking COR theory (Hobfoll et al. 2018), we argued that organizational change can be stressful and is, therefore, often accompanied by negative affect. This negative affect toward change can undermine adjustment, reflected in heightened levels of post-change work role overload and work errors.

[8]To include both moderator variables simultaneously, we used the *zmatrix* command in PROCESS. All predictor variables, including the interaction terms, were mean centered before starting the analysis.

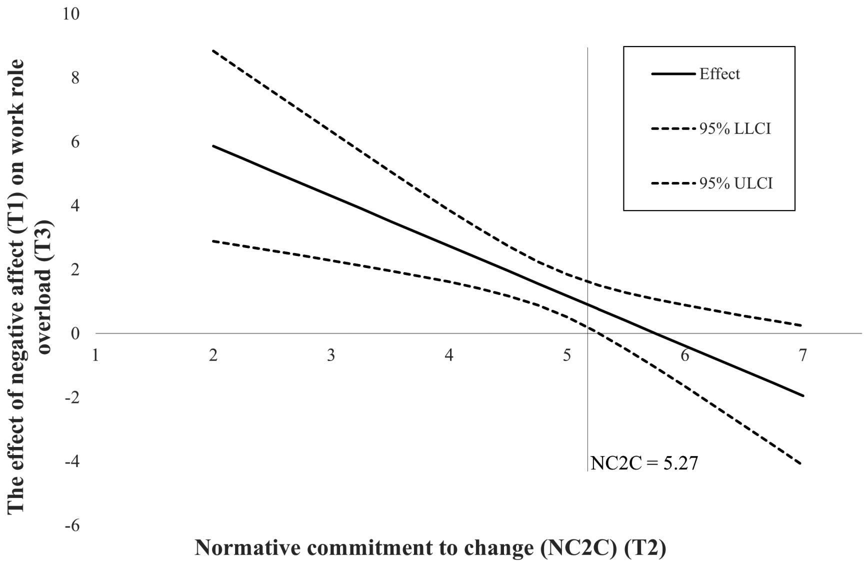

Figure 2. Johnson–Neyman interaction plot (normative commitment to change). *Note*: At a 95% confidence level, the effect of negative affect on work role overload is statistically significant when normative commitment to change <5.27.

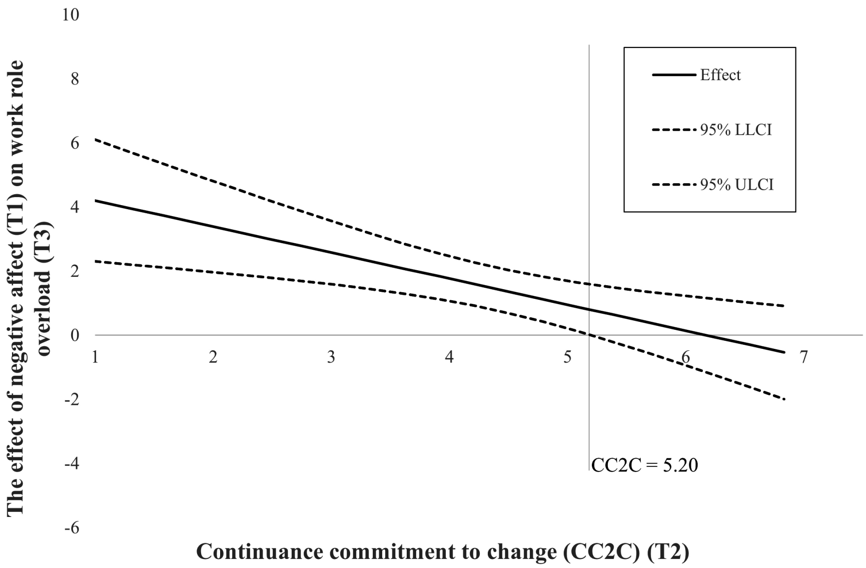

Figure 3. Johnson–Neyman interaction plot (continuance commitment to change). *Note*: At a 95% confidence level, the effect of negative affect on work role overload is statistically significant when continuance commitment to change <5.20.

In our empirical study, we found general support for these theoretical predictions. Moreover, we found that the detrimental effects of change recipients' negative affect toward the change were extenuated by their level of normative commitment to change (i.e., their sense of obligation and duty to provide support for the change). While continuance commitment to change (i.e., the belief that the costs of resisting the change are too high) also had a buffering effect, it was notably weaker and less effective in reducing work errors. In what follows, we discuss the theoretical and practical implications of these findings.

Theoretical implications

The present study adds to the existing literature on organizational change in public settings by investigating a unique context that has received little attention so far: public HROs. Such organizations are, on the one hand, characterized by priorities and decision-making processes geared toward meeting the needs of the public, and, on the other hand, by high stakes and a need for exceptional safety and reliability standards. This context can create unique challenges and pressures for employees within these organizations, especially when they undergo significant organizational change. Our results show that an important source of impaired adaptation to change in such a context is negative affect among change recipients during the implementation of the change. Such negative affect can arise even in situations where there is a general agreement on the need for and appropriateness of the change, suggesting that it is not the change itself, but how it is carried out, that prompts these reactions. Notably, we find that this negative affect does not necessarily need to be strong to produce negative effects, as reflected in the

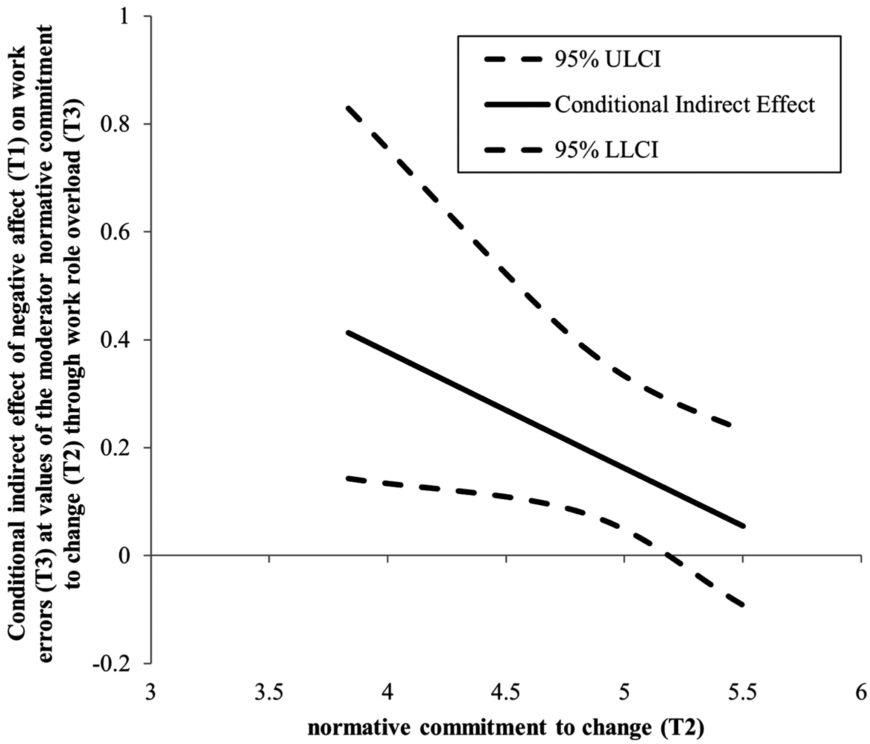

Figure 4. Conditional indirect effect (normative commitment to change)

low mean score of negative affect in our sample. Even low or mild negative affect appears to interfere with optimal adjustment and is associated with heightened stress and more work errors in the long run. It is plausible that the low negative affect mean score observed in our data stems from context-specific factors, particularly given the military setting of our research. In such environments, individuals are often trained to be disciplined and keep their emotions in check (McAllister, Callaghan, and Fellin 2019), which could explain their tendency to avoid the upper points in measures of negative affect. In our particular context of organizational change, this tendency might also represent an effort to minimize cognitive dissonance, particularly since our participants largely perceived the change per se as necessary and positive. Be that as it may, our findings resonate with those in other studies examining low-base rate negative experiences, such as abusive behaviors or workplace incivility, where even minimal levels of such experiences can have significant negative impacts (Mackey et al. 2017; Rosen et al. 2016). This appears to be particularly relevant in high-reliability contexts, where even small inefficiencies and errors can lead to grave consequences. That said, while some scholars have argued that negative feelings during change may to some extent be beneficial, motivating change recipients to speak up and provide constructive criticism (Ford, Ford, and A D'Amelio 2008; Klarner, By, and Diefenbach 2011), our results add a crucial caveat to this assumption. In a high-reliability context, the potentially positive role of negative affect appears to be offset by its negative impact on resource maintenance and safety indicators. Still, it is conceivable that the potential utility of negative affect may depend on the intensity of the underlying emotional experiences. Our findings support the notion that low affective intensity does not convert into motivation, but may reinforce rumination and distraction, whereas positive effects may arise from a medium level of affective intensity (Liu and Perrewé 2005). Obviously, more research is required to see when and under what circumstances such intermediate levels of negative affect may generate more positive outcomes in a high-reliability context undergoing change.

A significant contribution of our study is the identification of how normative commitment to change, and to a lesser degree, continuance commitment, serve as buffers against the adverse consequences of negative affect toward the change. Existing research on organizational change has generally prioritized affective commitment, that is, the perceived value of the change, over other forms of commitment (Meyer and Hamilton 2013), which is also true for the few available studies in the field of public management change. This is because affective commitment to change is often considered to be a stronger predictor of positive attitudes and behaviors toward change initiatives, such as higher levels of participation, support, and advocacy (Van der Voet et al. 2016). Yet, this focus may be overstated as empirical research has shown that especially normative commitment can have similar effects on desirable outcomes (Bouckenooghe, Schwarz, and Minbashian 2015; Meyer and Hamilton 2013). Like affective commitment, normative commitment also reflects a change recipient's free choice to support the change, and is thus thought to promote proactive support and more efficient coping with the change (Jaros 2010). Our findings contribute to this notion by showing that in certain contexts, normative commitment can even carry greater weight as a coping resource. In an environment that is highly regulated and requires significant investment in specialized training, such as public HROs, the ability to cope with change appears to be more strongly influenced by change recipients' sense of obligation and duty.

This finding also offers insight into why continuance commitment to change emerged as an effective buffer against negative affect in our study, although with a weaker effect size.

Traditionally perceived as a form of resignation and less effective in coping with change (Bouckenooghe, Schwarz, and Minbashian 2015), our findings suggest a different role for continuance commitment in public high-reliability contexts. Here, it appears to represent a deeper commitment to safety and acting in the public's best interest, rather than mere resignation. This recontextualization of continuance commitment underscores its unique and positive role in such environments.

In conclusion, while we acknowledge the importance of affective commitment to change, especially in generating enthusiasm and excitement around a change initiative, our findings suggest a greater role for normative and, to a lesser extent, continuance commitment in driving actual behavior and sustaining adjustment in the face of challenges. In public HROs, these forms of commitment, especially normative commitment, may be a manifestation of an underlying safety or reliability identity (Vaz et al. 2023). They are based on a deeper sense of personal values and beliefs, making them more resistant to external pressures or internal distractions.

Practical implications

A rather straightforward practical implication of our study results is that HROs undergoing change should make the mitigation of negative affect toward the change among change recipients a priority. This is not to say that negative affect needs to be completely eliminated or employees should suppress negative emotions, which can even increase stress and emotional exhaustion (Elfenbein 2007). Rather, HROs should encourage employees to express their negative feelings early on and address these concerns thoroughly so that these negative affective reactions do not become attached to the change project as whole. This goes beyond the usual recommendation to create a generally supportive environment where open and honest communication is encouraged. Public HROs undergoing change should use structural measures, such as continuously monitoring affective reactions among employees during change, actively addressing negative affect in focus-groups and one-one-one meetings, and offering coaching or counseling services.

Furthermore, our results highlight the instrumental value of interventions to foster normative commitment to change, as this attitude was found to buffer the detrimental consequences of negative affect in our data. Steps taken to promote normative commitment may revolve around relationship building and identification, such as transformational leadership and fairness in the change implementation (Meyer and Hamilton 2013). Moreover, when undergoing change, public HROs may particularly benefit from stressing the ideological value of the change, that is, how it aligns with the organization's goals to serve citizen safety and security. This can be the basis for powerful appeals to employees' values and ideals, even if they feel uncomfortable or uncertain about certain features of the change.

Additionally, it may be beneficial to highlight the potential drawbacks and costs of not supporting the change. Of course, this should not include manipulative tactics such as guilt-tripping or fear-mongering as these can damage employee trust and ultimately undermine commitment.

Limitations and future research directions

Despite these contributions, several limitations of this research remain. First, despite using a time-lagged approach in our data collection, our study remains cross-sectional (Ployhart and Ward 2011; Spector 2019). This raises the challenge of drawing causal inferences. Causal assertions build on three core elements: the establishment of covariation, ensuring temporal precedence, effectively ruling out alternative explanations, and elucidating the explanatory mechanism (Spector 2019). Our data compellingly shows evidence of covariation, in line with our hypotheses. This conclusion is supported by the temporal sequencing of our variables, with negative affect evaluated at T1 and errors—our pivotal outcome—captured at T3, following the change implementation. Furthermore, we controlled for potential alternative explanations, such as proactive personality, prior error rates, and perceived change efficacy. However, it is important to acknowledge a possible bidirectional relationship between negative affect, role overload at work, and errors. Prior studies suggest that negative affect can be a consequence of role overload and errors (Edmondson 1996; Farnese, Fida, and Picoco 2022; Spector and Goh 2001), potentially initiating a cyclic feedback loop. Affect, role stress, and errors might therefore be intertwined during the entirety of a change process. Consequently, it would be useful in future research to have repeated measures of these variables. This approach would offer a more nuanced understanding of the adjustment process, specifically tracking how changes in affective reactions, perceived role stress, and work errors evolve over time. Additionally, including measures of critical events throughout the change could shed light on what causes specific affective reactions and related turning points.

Furthermore, drawing on circumplex models of affect (Russell 1980), we acknowledge that our focus in this study was on high activation affect (e.g., being upset or afraid). Oreg et al. (2018) proposed that change recipients can also experience low activation negative affect toward the change, such as despair, sadness, or helplessness, resulting in passivity, disengagement and withdrawal. This form of negative affect could also promote increased work errors, albeit with mechanisms distinct from those associated with role overload. In future research, it will be important to investigate whether and to what extent normative and continuance commitment to change can serve as buffers against this specific type of negative affect, and to delve into the underlying mechanisms involved.

Another area meriting further exploration and discussion centers on the methodology of quantifying work errors through self-reports. We acknowledge that self-reports are subjective and may carry some degree of bias. Intuitively, one could assume that the potential stigma around admitting mistakes might lead to an underestimation of error rates through self-reports. It is, however, important to recognize that observations and other-reports are not necessarily superior to self-reports (Conway and Lance 2010). For instance, many errors are overt or immediately addressed, making them less accessible to observation by others. This is supported by research on other sensitive topics in organizations such as counterproductive workplace behavior. Meta-analytic findings indicate that while both self- and other-reports yield comparable results, the latter capture a narrower subset of counterproductive behaviors (Berry, Carpenter, and Barratt 2012). Given our context of HROs, it is plausible that employees' heightened sensitivity and vigilance toward errors could contribute to more accurate self-reporting of errors. This accuracy was further bolstered by assuring participants of the confidentiality and anonymity of their responses, a measure known to promote candor (Latorella and Prabhu 2000). Such methodologies resonate with prior research in HRO domains that have successfully employed self-reported error metrics in areas like health care and patient safety (Johnson et al. 2014; Owoc et al. 2022; Scobie 2011), driving (de Winter 2013; Koppel et al. 2019), nuclear power plants (Tao et al. 2021), and aviation (Johansson and Melin 2018; O'Hagan et al. 2016). While we uphold the credibility of error self-reports in HRO-based research, it would be beneficial for future investigations to integrate alternative methodologies, like qualitative data from audits or simulations (Latorella and Prabhu 2000), to further corroborate our findings.

A final issue, one that is both a limitation and a strength, concerns our sampling from a single organizational unit. This is a strength because it provides a highly controlled and uniform setting to study planned change in HROs. Nonetheless, it might also introduce potential biases due to range restrictions in the sample and, furthermore, restrict the generalizability of our findings. Despite this limitation, we argue that the unique context of our study, along with a theory-based analysis of how our key variables interact within this environment, allows for the extrapolation of our findings to similar situations. This perspective aligns with methodological approaches that view generalizability more as a matter of transferability (Smith 2018). On this basis, we maintain that our findings hold significant value for other public HROs. In such contexts, where there is a heightened focus on duty, the high costs of failure, and a critical need to avoid even small errors, our findings can provide insightful guidance and enhance understanding.

Supplementary material

Supplementary material is available at *Journal of Public Administration Research and Theory* online.

Data availability

The data underlying this article are available in figshare: https://uvaauas.figshare.com/articles/dataset/PHRO_Organizational_Change_Study/25394869

Ethical statement

All authors declare that they have no conflicts of interest. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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