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MEASURING PERCEIVED ORGANIZATIONAL ADAPTATION TO HINDERING EXTERNAL CONDITIONS: SCALE DEVELOPMENT AND VALIDATION

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Purpose: The pandemic, announced in late 2019, has deeply affected business organizations around the world. Compared to previous shocks, it has proved in many ways unprecedented, forcing organizations to quickly adapt to a fundamentally new environment. While some of the longer-term consequences of this ongoing experiment for both employers and employees are yet to be seen, it is worth surveying the organizational adaptation to the challenge perceived from the perspective of employees. This study thus aims to investigate the construct of, and develop a measurement instrument for, perceived organizational adaptation to hindering external conditions (POAHEC), which in our study were created by the globally declared pandemic.
Design/methodology/approach: Items were developed based on interviews with employees and expert evaluations. Exploratory factor analysis, conducted using data collected from 1001 employees working for diverse organizations operating in Poland, revealed a single-factor structure of the POAHEC scale. Confirmatory factor analysis was carried out on the first-order latent variable using the PLS-SEM.
Findings: The instrument met the minimum requirements for convergent validity, reliability and collinearity. In addition, the nomological validity of the scale was established. The findings suggest that the proposed 7-item scale is valid and reliable for measuring perceived organizational adaptation to hindering external conditions.
Research limitations/implications: The present work provides only preliminary evidence of nomological validity, construct validity and reliability. Future research should focus on determining additional degrees of criterion-relevance, reliability and test-retest use.

Practical implications: This study provides important guidelines for management practice, especially useful in the face of increasing destabilizing activities in the environment. We believe that the proposed scale will help raise managers' awareness of employees' concerns in the workplace, and through the evaluative feedback they receive from it will allow them to develop procedures to prevent psychological contract violations as a result of future disruptions.
Originality/value: Unlike previous attempts to measure more generally and broadly understood organization-environment interactions, this work takes into account the phenomenon of organizational adaptation to a specific situation in the environment, such as a pandemic, war, natural disaster, etc., which impedes the smooth functioning of the organization.
Keywords: organizational adaptation, hindering external conditions, scale development, scale validation.
Category of the paper: Research paper.

1. Introduction

Even before the COVID-19 pandemic, which was announced in late 2019, the world was increasingly perceived as volatile, uncertain, complex, and ambiguous (Bennis, Nanus, 1985). Fast-paced technological progress had already resulted in a series of disruptive innovations, undermining or deeply transforming both societies and business models. Geopolitical tensions also grew, threatening the global flow of goods, people and ideas. In response to these challenges, the ability to adapt was commonly identified as the key skill of leaders (Horney, Pasmore, O'Shea, 2010) and a feature of successful organizations (Saleh, Watson, 2017).

The shock of pandemic, however, was in many ways unprecedented, bringing uncertainty and change to new levels (Borio, Claudio, 2020). First, it was truly global, affecting people across the world. Second, it came fast, and very quickly transformed nearly all aspects of life for nearly everybody. Large-scale physical separations and mobility restrictions, known as lockdowns, were enforced by governments, causing millions of people to be confined to their homes, placed under quarantine and sick leave, and compelled to work from home. Lockdowns have caused fast shifts in consumer demand as well as the closure of factories, establishments and premises all over the world. Consequently, global supply chains became disrupted, which had a significant impact on how organizations operated globally. Economically, the impact was quickly likened to the Big Crisis of the 1930s (Shibata, Ippei, 2021). During the first wave of COVID-19 in the United States, in spring 2020, the number of unemployed Americans rose by more than 17 million, an increase comparable, but much faster than during the Great Recession (Federal Reserve Bank of St. Louis, 2024). The data reinforces, for example, the analysis of Chinese economists, who have shown the impact of the pandemic on the increase in unemployment in China's Guangdong province (whose GDP is larger than that of all 12 largest countries in the world) by 72%, a 57% increase in unemployment claims even after the economy fully reopens in 2020 compared to their levels during the same period in 2019 (Li, Sun, Tao,

Lee, 2023). Similarly, analyses for Europe's largest economies (Germany, Italy, UK) have shown the significant impact of the pandemic on the scale of unemployment experienced, while pointing to the urgent challenge of shaping active labor market policy solutions (Su, Dai, Ullah, Andlib, 2022). In June 2021, the International Labor Organization estimated that the economic crisis caused by the pandemic is likely to push more than 200 million people globally into unemployment (International Labor Organization, 2021). For those who remained employed, working conditions changed dramatically – either due to their constant exposure to the then little understood threat, or due to a massive transition to remote work – creating a situation where, according to the job demands-resources theory, external demands outstripped resources or the ability to meet them (Demerouti, Bakker, Nachreiner, Schaufeli, 2001).

As a result, there was a great deal of uncertainty in the workplace relationships, which in turn threatened employees' trust in their supervisors. The scale of the crisis associated with the declared pandemic meant that both organization's leaders and lower-level managers - the immediate superiors - were put to a test that few could have anticipated (Tourish, 2020). Leaders found themselves facing a radically uncertain environment. The coronavirus crisis sharply revealed both good and bad consequences of existing leadership models, which were subject to employee evaluation. The need to work remotely increased employees' perceptions of conflict between work and home, thereby fostering the recognition of a violation of the psychological contract (Gong, Sims, 2023). Since employees are internal stakeholders, they have a larger and more complex psychological dimension than most other stakeholders, which makes capturing their perspective particularly important (Frandsen, Johansen, 2011). A crisis situation in an organization such as that caused by the COVID-19 pandemic is fundamentally different from standard crises in organizations. It is seen as a major crisis that precipitates considerable unanticipated organizational transformation (Harter, 2020). But at the same time, it makes it virtually impossible for employees to learn from previous experiences, extends over a long and unpredictable period of time, and involves enormous uncertainty (Ruppel, Stranzl, Einwiller, 2022). Therefore, organization leaders are primarily responsible for carrying out organizational transformation in response to these types of hindering external conditions. This type of crisis-driven change is more risky and unclear than well-planned and expected change projects, and can leave employees feeling lost, uneasy, or inept (Shaw, 2018). The conclusions of the article by Gong and Sims (2023), which describes the effects of a workplace disruption scenario and outlines a pathway for how a shock to the work environment can cause employee mistrust, exacerbate work-life conflict, and ultimately lead to a breach of the psychological contract, are particularly pertinent in this context. According to the authors, managers should be aware of such concerns about workplace disruptions and create procedures to stop psychological contracts from being broken as a result of disruptions (Gong, Sims, 2023). All this makes the need to apply an employee-centered perspective to a pandemic situation particularly important and urgent (Ruppel et al., 2022).

To address this challenge, this paper seeks to validate a measure to assess organizational adaptation to hindering external conditions such as COVID-19 as viewed from the perspective of employees. Effective measurement, according to experts, is essential to scientific study and is a fundamental component of the latent variable model (DeVellis, 2017; Netemeyer, Bearden, Sharma, 2003; Slavec, Drnovsek, 2012). Therefore, the scale development process we use involves a number of methodical and intricate steps that require rigorous theoretical and methodological standards (Pasquali, 2010; DeVellis, 2017; Clark, Watson, 1995; Nunnally, 1967). Previous efforts focused on more generic threats and challenges to organizations leading to the proposal of scales such as organizational readiness for change (Lehman, Greener, Simpson, 2002) or organizational resilience (Lee, Vargo, Seville, 2013). Given the specific nature of the pandemic, we develop and validate a tool dedicated to this and similar stress factors. This means that the scale is designed to be used in the face of a variety of external conditions that impede the normal operation of an organization, such as a pandemic, war, natural disaster, etc. Using a sample of 1001 Polish employees from diverse organizational sectors, we propose a 7-item simple tool to assess employee perceptions of their work organizations' adaptation to a pandemic. Using approved scale-development techniques (DeVellis, 2017) we validate the scale and are able to suggest it as a synthetic measure of perceived organizational adaptation to hindering external conditions (POAHEC).

2. Literature review

2.1. Organizational adaptation

Organizational adaptation is a multifaceted, complex concept. Its understanding is further blurred by the proliferation of imperfect synonyms for it in the literature, such as 'alignment', 'fit', 'congruence', 'convergence' or 'strategic change'. According to Chakravarthy (1982), organizational adaptation is "the primary purpose of strategic management". In the most general terms, strategy is a prescription, a blueprint for how best to adapt an organization to its environment, and strategic management is a continuous process of formulating and implementing a strategy understood in this way, i.e. a strategy that fosters organizational adaptation. Organizational adaptability, in turn, is defined as "the extent to which a firm creates or responds to changing demands or opportunities in the environment" (Ployhart, Turner, 2014, p. 75). The pandemic has placed extremely high and unprecedented demands on organizations around the world. Some of them, especially large companies, demonstrated the ability to adapt to the new situation, and even discovered new opportunities and successfully exploited them. Others, especially small and medium-sized companies, lacked this ability. Undoubtedly, the Covid-19 pandemic in particular, but also recent significant natural disasters, terrorist

attacks, wars, economic and social crises have made the concept of organizational adaptation increasingly attract the attention of researchers and practitioners (Kimhi, Marciano, Eshel, Adini, 2020).

According to Sarta, Durand and Vergne (2021), organizational adaptation is "intentional decision making undertaken by organizational members, leading to observable actions that aim to reduce the distance between an organization and its economic and institutional environments". With this approach, adaptation is distinguished from generic strategic change and treated as a particular kind of intentional change meant to foster greater convergence between the organization and its environment (Sarta et al., 2021). Such a definition also makes it possible to clearly distinguish the causes of adaptation, such as seeking change or yielding to institutional pressure, from its effects in the form of organization's performance or its survival. Organizational adaptation refers to the adaptive capacity of an organization expressed in the ability of its processes, developed by organizational members, to adapt to changing external conditions (Folke, Carpenter, Walker, Scheffer, Chapin, Rockström, 2002). In this context, organizational adaptation is associated with flexibility. Flexibility is the capacity to make decisions rapidly, communicate effectively within the organization, and learn new information quickly in order to quickly change procedures and strategies to shifting circumstances (Pal, Torstensson, Mattila, 2014). According to the creators of the Model for Enhancing Organizational Resilience (ICOR, 2022), which is based on ISO 22316: Security and Resilience - Organisational Resilience Principles and Attributes, adaptability implies flexibility, or the capacity to use current resources for new purposes or for one solution to serve multiple functions. Flexibility may be attained in several ways, including by combining indigenous or traditional knowledge and practices in novel ways as well as by adding new knowledge and technology when necessary. When there is a disruption, the capacity to be adaptable and flexible can show up in making new plans, taking new actions, or changing behavior in order to better withstand and recover from it, particularly when it is not possible or wise to go back to what was there before (ICOR, 2022).

The process of organizational adaptation takes place not only at the strategic level, but also at unit and individual levels. There is a growing literature on adaptation at the individual and group levels (e.g., Beier, Oswald, 2012; LePine, Colquitt, Erez, 2000). Ployhart and Turner (2014) developed a framework in which they point out psychological underpinnings of organizational adaptability from two perspectives, a "bottom-up" and a "top-down" perspective. The bottom-up processes that affect organizational adaptability are the processes of emergence of human capital resources that determine firm adaptive performance. A multi-level model of the emergence of human capital resources was proposed by Ployhart and Moliterno (2011). According to these authors, human capital resources are defined as the unit's aggregate pool of knowledge, skills, abilities, and other attributes (KSAOs) (Ployhart, Moliterno, 2011). Although they are occurrences at the unit or business level, human capital resources have their roots in the KSAOs of individuals. At the same time, the emergence or

manifestation of human capital resources is influenced by processes of the second type, the top-down processes influencing organizational adaptability. They mainly consist of HR systems and organizational routines, the shaping of which is the responsibility of managers. Both HR systems and organizational routines influence attitudes and behavior of individuals (Bowen, Ostroff, 2004; Ployhart, Moliterno, 2011). This influence may enable or constrain adaptation at unit and individual levels, determining organizational adaptation. Higher-order routines, which lower the costs of change, and routines for creating innovations that assist firms in renewing their product/service offerings are two examples of routines that facilitate organizational adaptation (Ployhart, Turner, 2014). In the face of unexpected hindering changes in the environment, as in the case of a pandemic, there is a need for an immediate response. In such a situation, the solution is to create new operating routines. They may introduce completely new rules and ways of operating or arise by recombining existing routines (Nelson, Winter, 1982). Leadership plays a special role in this process.

The model of leadership for organizational adaptability (Schulze, Pinkow, 2020) assigns enabling leaders the task of creating "adaptive spaces", i.e. ways of dealing with emerging tensions. Such tensions can arise both in the process of creating innovations, when new ideas collide with the organization's operating system, and in the face of a challenging environment that requires employees to learn and apply new solutions. Therefore, in the face of a crisis situation, decisions made by managers regarding organizational adaptation will either catalyze or inhibit group and individual adaptation. By inhibiting it, they can increase tensions among employees, leading to negative emotional states such as distress and low morale, and compromised work ability (Dollard, Osborne, Manning, 2013). In such a situation, the lack of individual adaptation will be the result of external demands outweighing the resources or the capacity of personnel to meet these demands (Hobfoll, 1989). According to the job demands-resources theory (Demerouti et al., 2001), hindering job demands cause energy deficits resulting in job burnout rather than positive outcomes (Hakanen, Schaufeli, Ahola, 2008). Therefore, employees may be more likely to experience negative work outcomes, such as stress or fatigue, than positive outcomes, such as work engagement, if they encounter more hindering job demands (Haffer, Haffer, Morrow, 2021). Then the role of enabling leaders is to provide or support in the development of job resources that will allow employees to balance hindering external job demands, enabling them to adapt individually. Failure of managers to provide adequate resources to employees in the face of workplace disruptions such as those caused by a pandemic, war or natural disaster, can lead to the breakdown of psychological contracts between them and their supervisors (Gong, Sims, 2023). The above logic prompts the study of organizational adaptation to the pandemic from the employee's perspective (Ruppel et al., 2022), which would allow managers to obtain evaluative feedback from employees about the actions they took in response to hindering external conditions.

2.2. Organizational adaptation to hindering external conditions

There are attempts in the literature to explain how to assess adaptive capacity (Engle, 2011). However, there are no validated measures of this construct. In contrast, there are successful attempts to develop a tool to measure organizational readiness for change (Lehman, Greener, Simpson, 2002) or organizational resilience (Lee et al., 2013), which includes organizational adaptability as its component. However, we are not aware of any existing scales to measure perceived organizational adaptation to hindering external conditions.

In the proposed POAHEC construct, we attempt to capture change in the similar way that Sarta et al. (2021) capture it in their definition of organizational adaptation, i.e. as a purposeful change intended to foster greater alignment between the organization and its environment. We are interested in the reaction of the organization's leaders to the specific external circumstances hindering the organization's operations, which in our study were caused by the pandemic. Rather than concentrate on the consequences of the actions taken to adapt, we focus on the actions themselves. At the same time, we see these actions as a manifestation of organizational flexibility by combining adaptability with flexibility in the definition of POAHEC. Therefore, for the purposes of this study, we assume, following Sarta et al. (2021) and Pal et al. (2014), that organizational adaptation to hindering external conditions

- is deliberate decision-making by managers of an organization, leading to observable actions aimed at bridging the gap between the organization and its economic and institutional environment in the face of hindering external conditions, such as pandemics, wars, natural disasters, etc.,
- whereby these actions include the use of new resources and technologies to enable effective communication inside and outside the organization, and the development of new procedures and policies based on these, and consequently organizational behaviors and routines that enable the organization to meet its commitments to its stakeholders.

Hindering external conditions are understood as those to which the organization must adapt because they interfere with its smooth functioning by generating hindering job demands at the group and individual levels. The prefix 'perceived' in the name of the scale means that we focus on the decisions managers made in response to hindering external conditions as seen through the eyes of employees whose individual adaptation depends on them. Therefore, to generate the POAHEC scale items we analyze organizational adaptation in different contexts and from the perspective of numerous theories. Researchers of organizational adaptation investigate the reasons why organizations seek to adapt and the internal and external factors that drive adaptation under four main themes: (1) resources, search, and behavioral changes, (2) routines, capabilities, and knowledge, (3) governance and stakeholder management, and (4) competitive and institutional pressures (Sarta et al., 2021). Therefore we are interested in how managers configure organizational resources (the resource-based view approach) in response to hindering external conditions, which in our study were caused by the pandemic, i.e. in the face of the

situational factors that occurred (the contingency theory approach), and what new routines and behaviors they develop (the behavioral theory approach). At the same time, we wonder whether, in this new situation, the organization will still be able to fulfill its commitments to key internal (employees) and external (suppliers and customers) stakeholders. In Table 1, we present the POAHEC scale items generated, along with the research topics around organizational adaptation to which they relate and the literature sources that inspired their formulation.

Table 1.
Items of the scale of Perceived Organizational Adaptation to Hindering External Conditions (POAHEC)

POAHEC item		Organizational Adaptation research themes	Supporting literature
In the face of hindering external conditions (pandemic, war, natural disaster etc.):			
1	workplace management provided the necessary resources (protective materials, manuals, training, etc.) to enable me to work (remotely and/or on-site).	resources, search, and behavioral change: job resources	Peteraf, Reed (2007), ICOR (2022)
2	I felt safe performing my job duties due to the regulations put in place by workplace management.	routines, capabilities, and knowledge: regulatory actions – organizational regulations	Peteraf, Reed (2007), ICOR (2022)
3	my immediate supervisor efficiently organized work (remote and/or stationary).	routines, capabilities, and knowledge: regulatory actions – teamwork rules	Helfat, Peteraf (2015), Peteraf, Reed (2007), ICOR (2022)
4	the employer fulfilled its obligations to external stakeholders (suppliers, customers, etc.).	governance and stakeholder management: conformance with stakeholder expectations	DiMaggio, Powell, (1983), Uzzi (1997), Boiral (2007)
5	the employer fulfilled its obligations to its employees (in terms of wages, working conditions, staff appraisal and development, etc.).	governance and stakeholder management: conformance with stakeholder expectations	DiMaggio, Powell, (1983), Uzzi (1997), Boiral (2007), Gong, Sims (2023)
6	internal communication was efficient and I felt that I had all the necessary information.	routines, capabilities, and knowledge: management of communication channels that structure attention	Ocasio (1997), Pal et al. (2014), Li et al. (2021)
7	management encouraged the sharing of opinions about the operation of the workplace.	routines, capabilities, and knowledge: management of communication channels that structure attention	Eisenhardt, Tabrizi (1995), Ocasio (1997), Pal et al. (2014), Dynes, Aguirre (1979)

Source: own elaboration.

Among important theoretical approaches the resourced-based view (RBV) stresses that adaptation to change in the external environment often requires the enhancement or alteration of strategic assets through innovation and organizational learning, as well as acquisition of new assets. Moreover, adaptation of strategic assets throughout an organization entails integration, recombination, and reconfiguration of these assets (Helfat, Peteraf, 2015). As Teece (2007) observed, enterprises with strong dynamic capabilities –distinct skills, processes, procedures,

routines, organizational structures, decision rules, and disciplines – not only better adapt to business ecosystems, but also shape them through innovation and collaboration with other enterprises, entities, and institutions. According to resource-based theory, such capabilities play a central role in how firms achieve competitive advantage, therefore they need to be improved in the process of organizational learning. The learning that accompanies organizational capability development includes the discovery and internalization of new information as well as new experiences and feedback from individuals. This is where organizational adaptation meets individual and group adaptation. For individual-level learning to be transformed into organizational capabilities, however, new ideas and experiences must be interpreted and integrated within groups. These group-level processes, therefore, are a crucial mediator between learning at the individual level and the development of organizational capabilities (Walter, Lechner, Kellermanns, 2016).

Based on the RBV approach, we formulate three scale items (items 1-3) for providing job resources and developing new organizational routines in response to hindering external conditions. As an external shock, the pandemic forced organizations to suddenly switch to a remote work mode. This was not the case for every industry and position, but in some (e.g. universities, schools, banks) it affected the vast majority of their workforce. This required rapid learning of new IT methods and tools for distant work. Employees expected employers to support them in organizing their work from home, health and safety rules and supplying them with the necessary resources, including hardware and software (item 1). Within the organization, it became necessary to develop new rules of conduct in the face of changing regulations of the authorities and recommendations of medical services, so that employees felt safe at the workplace, but at the same time were able to perform their duties (item 2). An important role was played here by immediate supervisors, as it depended on their organizational skills to effectively translate the organization's regulations and management guidelines into the language of daily routine (item 3).

Using contingency theory Peteraf and Reed (2007) explain how managers might mitigate the constraints on choice – when their discretion is limited within one realm of choice, e.g. by regulatory constraints, they compensate by using the greater level of discretion afforded in another area. Meeting the requirements of external and internal stakeholders as a means of organizational adaptation is also raised by organizational sociology (e.g., DiMaggio, Powell, 1983; Meyer, Estrin, Bhaumik, Peng, 2009). An example of this type of adaptation is the implementation of widely accepted solutions and technologies, including, for example, the ISO management system standards (Boiral, 2007). According to the network approach, a special role in adapting to stakeholder expectations is played by rooting the organization in social ties that improve the flow of information (Uzzi, 1997). It makes it easier for leaders to recognize the expectations of partners and satisfy them, but their own expectations are also better satisfied in well-rooted relationships. Fulfillment by the employer of the psychological contract adapted toward employees under conditions of turmoil in the environment is, in turn,

a form of organizational search for compliance with the expectations of internal stakeholders (Gong, Sims, 2023).

Drawing from contingency theory and organizational sociology, the next two scale items (4 and 5) emphasize the importance of fulfilling commitments to stakeholders despite experienced hindering external conditions. The top management level of the organization had to respond to the expectations of various actors, as on the one hand it had to be concerned about the well-being of its employees (item 5), but at the same time organize their work in such a way that it could fulfill its obligations to external stakeholders (item 4).

Some studies representing behavioral theories highlight the importance of fast adaptation as a pivotal, strategic competence for many organizations. Eisenhardt and Tabrizi (1995) proposed the experiential approach (with high level of uncertainty) which rests on accelerated learning through iteration and testing that is combined with the motivation and focus of leadership. For Garud, Dunbar and Bartel (2011) organizational learning from unusual experiences implies an ability not only to make sense of and respond to such experiences in real time, but also to assimilate and use what has been learned from these experiences on an ongoing basis. For instance, organizations ought to learn from actual or impending disasters in ways that help them reduce the possibility of future disasters or deal with them more effectively should they reoccur. The authors argue that narrative development processes make this organizational learning possible. By developing narratives, organizational actors create situated understandings of unusual experiences, negotiate consensual meanings, and engage in coordinated actions. In organizational contexts, actors use and develop narratives to share and exchange ideas about unusual experiences they have observed. The attention-based view of the firm developed by Ocasio (1997) implies that the ability of the firm to adapt successfully to a changing environment is conditional on whether the firm's procedural and communication channels focus the attention of organizational decision-makers on an appropriate set of issues and answers. Dynes and Aguirre (1979) claim that in a crisis, the process of coordinating the activities of the organization, which is largely based on feedback, changes the most in an organization. A recent study confirmed that transparent internal communication was a key factor in supporting employees in coping with organizational change in the face of a pandemic (Li et al., 2021).

To address the issue of internal communication and the sharing and exchange of experiences in the process of organizational learning and adaptation, we propose two scale items (items 6 and 7). Among the most important aspects of effective teamwork is always the flow of information, hence making all communication channels clear and ensuring access to up-to-date internal and external information seems particularly relevant (item 6). Management had to observe the operation of the organization and the adaptation of employees to the new conditions, and collected feedback from employees about their functioning in the workplace, with new rules, principles, and procedures (item 7).

3. Methodology

The POAHEC scale was created using approved scale-development techniques (DeVellis, 2017). To this end, the following four studies were conducted: item generation, scale purification, scale dimensionality and validation, and nomological validity (see Table 2).

Table 2.
POAHEC scale development process

Stage	Study	Items
Stage 1 – Item Generation	Study 1: Literature review + interviews with employees (n = 15) representing the education and business sectors	Initial items: 31
Stage 2 – Scale Purification	Study 2: Face and content validity - two-stage expert review (n = 12)	Interim items: 7
Stage 3 – Scale Dimensionality and Validation	Study 3: Survey of a nationally representative sample (n = 1001) of Polish employees EFA - examination of the underlying structure of the POAHEC scale CFA - convergent validity	Purified items: 7 Model fit attained: one-factor solution
Stage 4 – Nomological Validity	Study 4: Survey of a nationally representative sample (n = 1001) of Polish employees to test the predictive nature of the POAHEC scale associated with the variables Organizational justice (OJ) as antecedent and Acceptance of management decisions (AMD) as consequence.	Nomological validity attained One-dimensional POAHEC scale established Final items: 7

Source: own elaboration.

3.1. Stage 1: item generation

Stage 1 involved the generation of items. In order to assure a greater knowledge of the phenomenon of organizational adaptation as it was previously described, a thorough evaluation of the pertinent literature was conducted in order to pinpoint the key themes in organizational adaptation research. To create a pool of initial measurement items, a domain sampling technique was utilized (Nunnally, Bernstein, 1994). This was accomplished using a series of interviews with 15 employees representing the education and business sectors over the course of three weeks. To ensure that they were working during the epidemic and experiencing its impacts, employees underwent screening. The only instruction given to employees was to "briefly describe the actions taken by your employer in response to the pandemic and your expectations in this regard". Responses included employer actions such as making remote working compulsory, introducing new policies for communicating with employees, establishing new sanitation procedures, introducing new policies for communicating with external stakeholders, and expectations such as receiving equipment, training and support to enable remote working, providing a safe workplace on site, being kept informed of changing

circumstances, job security and pay. We then used a deductive method to analyze the data in accordance with the literature and theoretically generate definition of the POAHEC construct. An initial pool of 31 items was obtained after deleting replies that were not readable or incomplete.

3.2. Stage 2: scale purification

Stage 2 involved scale purification. It was aided by a two-step expert review process using the Delphi method. First, twelve academic experts from a range of scientific fields (such as sociology, economics, management, law, and information and communication science) were chosen to refine the initial 31 items (Netemeyer, Bearden, Sharma, 2003). Each expert was requested to clarify any unclear or overlapped items and assess each of them in terms of how well it represented the POAHEC construct. 21 items were eliminated once agreement was obtained. In this step, the experts unanimously reduced the item pool by orienting the POAHEC construct towards a unidimensional variable with more general statements. Secondly, an expert panel of 12 experts, involved in the previous step, was organized, during which a total of 7 items were retained based on the individual expert assessments and the consensus reached. It was assumed that short, synthetic scales, when subjected to rigorous psychometric testing, have the practical advantage of being effective, characterized by low item repeatability and a lower risk of causing fatigue and boredom in respondents during the data collection stage.

3.3. Stage 3: scale dimensionality and validation

To test the POAHEC scale in stage 3 we used a nationally representative sample (N = 1001) of Polish employees who were interviewed by telephone. The interview lasted about 20 minutes and included 69 questions regarding respondents' views on workplace relations and their employer's reaction to the pandemic. The survey was part of a larger research project aimed at understanding the influence of procedural and distributive fairness at the workplace on job satisfaction, work-life balance and life quality in general, with particular attention to the mediating impact of employees' perception of management response to the pandemic. Only those respondents were qualified to participate who were employed before the official declaration of the epidemic in Poland, i.e. before March 13, 2020, and remained employed until the date of the interview in February 2021. We took effort to ensure broad representation not only according to standard demographic criteria (sex, age, and place of residence), but also the economic sector (by including workers in industry, commerce and services) and workplace type (by including both private and public entities). Participants were 54,4 per cent male, with a mean age of 43,5 years. 53,2 per cent claimed higher education, which is considerably higher than in the general Polish population (40,5 per cent in 2022), but is explained by our requirement for the respondents to be employed at a public institution or a private company, rather than be self-employed (thus excluding farmers and unskilled laborers). This sampling

strategy was selected on purpose to enable us to assess how Polish employees perceived the impact that the COVID-19 pandemic had on their employer[1].

EFA was carried out using a principal axis factoring, which is recommended by Costello and Osborne (2005) to bring the best results for non-normal data. The minimum factor loading criteria was set to 0.40 (Bandalos, 2018) and was met at between 0.643 and 0.813. The communality of the scale, which indicates the amount of variance in each dimension, was also assessed to ensure acceptable levels of explanation. The communality for each item was set to be above 0.4 (Leimeister, 2010) to confirm that each item shares some common variance with other items. The results showed that all communalities met this requirement and ranged between 0.414 and 0.661.

Next, the factorability of 7 items was examined. The correlation factorability criteria recommended by Hooper (2012) were applied, according to which the inter-item correlation should be higher than 0.3 with at least one other item. The results showed that all of the 7 items correlate at a level between 0.451 and 0.684 which is higher than 0.3, suggesting reasonable factorability. An important step involved weighing the overall significance of the correlation matrix through Bartlett's Test of Sphericity, which provides a measure of the statistical probability that the correlation matrix has significant correlations among some of its components with the p value of < 0.05 (Hair et al., 2009). The results were significant, $x2\ (n = 1001) = 3711.586\ (p < 0.001)$, which indicates its suitability for factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy (MSA), which indicates the appropriateness of the data for factor analysis, was 0.909. In this regard, data with MSA values above 0.8 are considered appropriate for factor analysis (Kaiser, 1970). To determine the number of factors, two methods are considered; 1) eigen one rule or Kaiser-Guttman rule (Kaiser, 1992), and 2) scree plot graph of the eigenvalues. A predetermine level of cumulative variance was set to a minimum of 60% representing the satisfactory percentage of variance criterion in social sciences (Hair et al., 2009). Finally, the factor solution derived from this analysis yielded one factor for the scale, which accounted for 62.419% of the variation in the data. All seven items loaded on this factor significantly. The one factor identified as part of this EFA aligned with the theoretical proposition in this research. Factor loadings are presented in Table 3.

[1] The full dataset is available on the Open Science Framework website: https://osf.io/7xfjb/?view_only=3ac032b25ecf45b6ae451463730bb101

Table 3.
EFA results (Study 3)

Items	Factor loadings
POAHEC_1	0.757
POAHEC_2	0.813
POAHEC_3	0.792
POAHEC_4	0.761
POAHEC_5	0.709
POAHEC_6	0.764
POAHEC_7	0.643

Source: own elaboration.

To confirm the one-factor POAHEC scale structure approach (Churchill, 1979), we employed CFA by analyzing survey data using structural equation modeling (SEM), a second-generation multivariate technique (Chin, 1998). Partial least squares (PLS) regression analysis was performed on the data. PLS was chosen for the study because of its greater flexibility over the covariance-based (CB) SEM. According to Wetzels, Odekerken-Schröder and van Oppen (2009), some limitations of the latter are sample size, model complexity, and measurement level. The assumption of a normal distribution for the input data and the increased applicability for confirmation studies were two additional constraints of CB-SEM that were particularly significant for our investigation. Both the Shapiro-Wilk test (Shapiro, Wilk, 1965) and the Kolmogorov-Smirnov test (Marsaglia, Tsang, Wang, 2003) revealed that the data did not meet the study's assumptions about the normality of distributions. This provides further justification for the use of PLS as it does not require normally distributed data (Fornell, Bookstein, 1982). In addition, partial least squares have applications in both confirmatory and exploratory research (Hair, Ringle, Sarstedt, 2011). When the theory is less developed and the research model has not undergone significant testing, as is the case in our work, it is frequently accepted as a strategy for theory testing in its early phases (Chin, 1998; Hair et al., 2011).

To perform CFA, we used WarpPLS® version 7.0 (Kock, 2021) with outer model analysis algorithm factor-based PLS type CFM3 (Kock, 2021). CFA models should satisfy a set of the fit and quality indices, including standardized root mean squared residual (SRMR) and standardized mean absolute residual (SMAR) values to be equal to or less than 0.10, standardized threshold difference count ratio (STDCR) and standardized threshold difference sum ratio (STDSR) to be equal to or greater than 0.90 (ideally equal to 1), and standardized chi-squared with 20 degrees of freedom (SChS) value should be significant with p value less than 0.05 (Kock, 2021). The model had good model fit with SRMR = 0.046, SMAR = 0.039, STDCR = 1.000, STDSR = 1.000 and SChS = 0.080, $p < 0.001$.

A set of reliability and validity measures for the latent construct were then assessed and are presented in Table 4. The Cronbach's alpha coefficient was above the cut-off value of 0.60 (Hair et al., 2017; Kock, 2021). Factor loadings (greater than 0.60, with p-values of 0.05 or below), composite reliability (greater than 0.60), and average variance extracted (AVE; greater than 0.50) were all above the threshold limits. Thus, convergent validity was achieved.

Table 4.
Construct Reliability (CR and CA) and Convergent Validity (AVE and Combined Loadings) (Study 3)

Items	POAHEC	p-value
CR	0.900	—
CA	0.899	—
AVE	0.562	—
POAHEC_1	0.756	<0.001
POAHEC_2	0.794	<0.001
POAHEC_3	0.780	<0.001
POAHEC_4	0.759	<0.001
POAHEC_5	0.721	<0.001
POAHEC_6	0.762	<0.001
POAHEC_7	0.670	<0.001

Source: own elaboration.

3.4. Stage 4: nomological validity

Nomological validity refers to how well a construct, in this example perceived organizational adaptation to hindering external conditions, interacts with other constructs that are thought to be connected to it (Bagozzi, 1981; Campbell, 1960). Perceived organizational adaptation to hindering external conditions is predicted to increase when employees systematically experience organizational justice (Folger, Konovsky, 1989). The POAHEC growth, in turn, is expected to increase employee acceptance of management decisions (AMD) made in response to COVID-19 (Dollard, Osborne, Manning, 2013). We have already published the results of examining these relationships earlier (Burdziej, Haffer, Moszyńska, Karwacki, 2024).

3.4.1. Organizational justice (OJ) and perceived organizational adaptation to hindering external conditions (POAHEC)

Given the multiple advantages of organizational justice that have been proven in other research, we anticipate that employees who are treated fairly would be more likely to believe that their company is better prepared for hindering external conditions. According to earlier studies (Folger, Konovsky, 1989), workers who believed their company treated them fairly

were more devoted and trusted their managers. In addition, they shown improved performance (Cohen-Charash, Spector, 2001), reported more work satisfaction, and demonstrated better organizational citizenship behavior (Haynie, Mossholder, Harris, 2016). Although these are correlates of organizational justice at the individual level, there is evidence that treating employees fairly also improves the firm as a whole. Organizational performance (Moon, 2017), organizational culture (Rupp, Thornton, 2014), and organizational or justice climate (Ambrose, Rice, Mayer, 2021; Hair, Black, Babin, Anderson, 2018) are examples of organization-level correlates of OJ that have been found in prior studies. As a result, we hypothesize:

H_1: Organizational justice (OJ) is positively associated with perceived organizational adaptation to hindering external conditions (POAHEC).

3.4.2. Perceived organizational adaptation to hindering external conditions (POAHEC) and acceptance of management decisions (AMD)

Hrebiniak and Joyce (1985) define organizational adaptation as the interdependence and interaction of environmental determinants and managerial choices. Under pandemic conditions, managerial choices refer to management decisions made to address this environmental challenge. These can include issues shown in Table 1 such as providing resources to perform work safely, or introducing new organizational regulations, in areas such as teamwork (remote and stationary) and communication, or meeting obligations to internal and external stakeholders despite the pandemic. These decisions will be important to employees as determining the comfort and efficiency of their work. If taken aptly and in a timely manner, they will result in better adaptation of the organization to the pandemic environment. According to Hobfoll (1989), a lack of adaptation of a workplace occurs in the case where environmental demands on the workplace exceed the resources or the capacity of personnel in the workplace to cope with these demands, negatively impacting employees. Thus, organizational failure to adapt to the environmental context may result in compromised work ability, due to increased worker distress and lowered employee morale (Dollard et al., 2013). At the same time, we know that the pandemic has strongly increased employee distress, also increasing their sense of danger (Kimhi et al., 2020). Therefore, we predict that under such conditions, making the right decisions by managers to adapt the organization to them will be met with employee approval. Accordingly, we pose Hypothesis 2:

H_2: Perceived organizational adaptation to hindering external conditions (POAHEC) is positively associated with employee acceptance of management decisions (AMD).

3.4.3. Method

To determine the nomological validity of the scale of perceived organizational adaptation to hindering external conditions, we used data from the same nationally representative sample (N = 1,001) of Polish employees who were interviewed for stage 3 of the scale development process. The survey questionnaire included, in addition to the other scales used in the study, the POAHEC items, the organizational justice (OJ) scale (Colquitt, 2001), and the acceptance of management decisions (AMD) scale drawn from the extensive literature on legitimacy in

various institutional contexts (see Tyler, Jackson, 2014). Both scales were slightly adapted to the pandemic context.

The OJ scale contains 20 items that measure four independent dimensions: procedural justice (PJ; 7 items), distributive justice (DJ; 4 items), interpersonal justice (ITJ; 4 items), and informational justice (IFJ, 5 items). A 5-point rating scale was used to evaluate the items, with the extreme categories denoting 1 = to a small extent and 5 = to a large extent. Sample items included: "To what extent have you been able to express your views and feelings during the implementation of pandemic response procedures by your employer?" (PJ), "To what extent does your outcome reflect the effort you have put into your work?" (DJ), "To what extent have the management representatives responsible for establishing procedures implemented in response to the pandemic treated you in a polite manner?" (ITJ), and "To what extent has management representatives responsible for establishing procedures implemented in response to the pandemic been candid in their communications with you?" (IFJ).

The AMD scale includes 3 items. All items were assessed with a 5-point Likert-like scale ranging from 1 = strongly disagree to 5 = strongly agree. Items included: "I fully agree with the workplace management decisions made in response to the COVID-19 pandemic", "If I were the manager I would have taken totally different decisions in response to the pandemic" (reverse coded), and "Management decisions in response to the pandemic were generally right".

Perceived organizational adaptation to hindering external conditions (POAHEC) was measured using a 7-item scale indicated in Table 1. All items were assessed using a 5-point Likert-like agreement scale ranging from 1 = strongly disagree to 5 = strongly agree. Higher ratings indicate a more positive perception by employees of the employer's response to hindering external conditions created by the pandemic in our survey.

The antecedence (OJ) and consequence (AMD) of the perceived organizational adaptation to hindering external conditions are conceptualized in Figure 1.

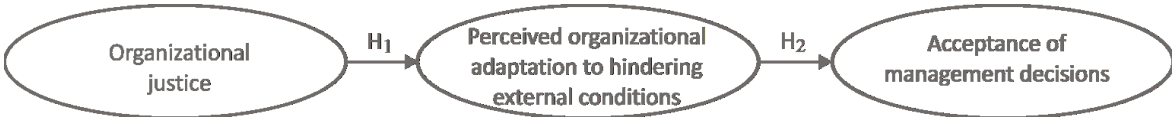

Figure 1. The antecedence (OJ) and consequence (AMD) of the perceived organizational adaptation to hindering external conditions.

Source: own elaboration.

3.4.4. Data analysis

We again used WarpPLS 7.0, this time with the default PLS Regression analysis algorithm, to examine the outer model data for reliability and validity (Kock, 2021). In Study 4, we used the same model assessment criteria as in Study 3. The model had good model fit with SRMR = 0.065, SMAR = 0.049, STDCR = 0.993, STDSR = 0.969 and SChS = 4.910, $p<0.001$.With Cronbach's alpha (CA) and composite reliability (CR) coefficients both well above 0.6, all latent constructs showed strong reliability. Their high convergent validity, in turn, was confirmed by factor loadings exceeding the 0.6 threshold and AVE values higher than 0.5

for each latent variable (see Table 5). Since all correlations were less than the square root of AVE (Fornell, Larcker, 1981), discriminant validity was also attained (see Table 6).

Table 5.
Construct Reliability (CR and CA) and Convergent Validity (AVE and Combined Loadings) (Study 4)

	POAHEC	AMD	OJ_PJ	OJ_DJ	OJ_ITJ	OJ_IFJ	p-value
CR	0.921	0.862	0.876	0.939	0.944	0.941	—
CA	0.899	0.754	0.835	0.913	0.920	0.922	—
AVE	0.624	0.680	0.504	0.794	0.810	0.762	—
POAHEC_1	**0.796**	-0.124	0.060	-0.053	-0.110	-0.038	<.001
POAHEC_2	**0.837**	0.082	0.029	0.042	0.013	-0.054	<.001
POAHEC_3	**0.822**	-0.004	-0.023	-0.035	0.031	-0.037	<.001
POAHEC_4	**0.800**	-0.089	-0.012	0.002	0.081	-0.103	<.001
POAHEC_5	**0.760**	-0.053	-0.103	0.138	0.202	-0.094	<.001
POAHEC_6	**0.803**	0.132	-0.074	-0.017	-0.065	0.196	<.001
POAHEC_7	**0.706**	0.054	0.132	-0.081	-0.162	0.146	<.001
AMD_1	0.121	**0.904**	0.027	0.037	-0.035	0.040	<.001
AMD_2	-0.416	**0.640**	-0.079	-0.034	0.025	0.006	<.001
AMD_3	0.174	**0.902**	0.029	-0.013	0.017	-0.044	<.001
OJ_PJ_1	0.198	-0.112	**0.716**	0.051	-0.120	-0.157	<.001
OJ_PJ_2	0.126	-0.123	**0.700**	0.084	-0.174	-0.129	<.001
OJ_PJ_3	0.046	-0.014	**0.707**	-0.067	0.057	0.074	<.001
OJ_PJ_4	-0.087	-0.074	**0.658**	-0.099	0.144	-0.020	<.001
OJ_PJ_5	-0.139	0.093	**0.775**	-0.039	0.029	0.185	<.001
OJ_PJ_6	0.043	-0.083	**0.655**	0.041	-0.179	-0.001	<.001
OJ_PJ_7	-0.169	0.277	**0.748**	0.027	0.225	0.027	<.001
OJ_DJ_1	-0.017	0.033	0.051	**0.858**	0.018	-0.034	<.001
OJ_DJ_2	0.050	-0.028	-0.034	**0.914**	0.008	-0.034	<.001
OJ_DJ_3	-0.061	0.022	0.041	**0.904**	0.012	0.006	<.001
OJ_DJ_4	0.027	-0.027	-0.056	**0.886**	-0.038	0.062	<.001
OJ_ITJ_1	0.007	-0.012	0.011	0.013	**0.915**	0.076	<.001
OJ_ITJ_2	0.029	-0.008	-0.004	-0.009	**0.937**	-0.058	<.001
OJ_ITJ_3	0.001	-0.005	-0.023	-0.001	**0.948**	-0.023	<.001
OJ_ITJ_4	-0.043	0.029	0.019	-0.004	**0.791**	0.008	<.001
OJ_IFJ_1	-0.107	0.074	0.007	0.024	0.139	**0.861**	<.001
OJ_IFJ_2	0.036	-0.123	0.025	-0.058	-0.011	**0.900**	<.001
OJ_IFJ_3	-0.132	0.142	0.008	-0.009	-0.011	**0.886**	<.001
OJ_IFJ_4	0.090	-0.021	-0.083	-0.004	0.018	**0.864**	<.001
OJ_IFJ_5	0.116	-0.071	0.043	0.051	-0.135	**0.853**	<.001

Source: own elaboration.

Table 6.
Discriminant Validity—Correlation of Latent Variables with Square Root of AVEs (Study 4)

	POAHEC	AMD	OJ_PJ	OJ_DJ	OJ_ITJ	OJ_IFJ
POAHEC	**0.790**	0.722	0.575	0.510	0.628	0.729
AMD	0.722	**0.825**	0.553	0.478	0.569	0.674
OJ_PJ	0.575	0.553	**0.710**	0.486	0.575	0.628
OJ_DJ	0.510	0.478	0.486	**0.891**	0.478	0.514
OJ_ITJ	0.628	0.569	0.575	0.478	**0.900**	0.731
OJ_IFJ	0.729	0.674	0.628	0.514	0.731	**0.873**

Note. The bold type represents the square root of the AVE.

Source: own elaboration.

Following the measurement model's validity and reliability testing, hypothesized relationships were drawn into a model. The relationships between the constructs were determined through an examination of the structural model path coefficient (β) and significance. The results of the hypothesis tests and the effect sizes (f2) are displayed in Table 7. Values of 0.35, 0.15, and 0.02 suggest large, medium, and minor effects, respectively (Cohen, 1988).

Table 7.
Hypothesis Testing—Study 4

Hypotheses	Path	Path Coefficient (β)	*p*-value	Effect Size (f2)	Result
H_1	OJ -> POAHEC	0.761	<.001	0.579	Supported
H_2	POAHEC -> AMD	0.723	<.001	0.523	Supported

Source: own elaboration.

For the entire model, the global model fit and quality indices (Hair et al., 2011) matched the following criteria: APC = 0.322 ($p < 0.001$), ARS = 0.554 ($p < 0.001$), AARS = 0.553 ($p < 0.001$), AVIF = 2.040 (acceptable if <= 5, ideally <= 3.3), AFVIF = 2.368 (acceptable if <= 5, ideally <= 3.3), GoF = 0.621 (small >= 0.1, medium >= 0.25, large >= 0.36), SPR = 1 (acceptable if >= 0.7, ideally = 1), RSCR = 1 (acceptable if >= 0.9, ideally = 1), SSR = 1 (acceptable if >= 0.7), NLBCDR = 1 (acceptable if >= 0.7), SRMR = 0.065, SMAR = 0.049, SChS = 4.910 ($p < 0.001$), STDCR = 0.993, STDSR = 0.969. These fit and quality indices point to a satisfactory model–data fit. The R2 (coefficient of determination) values for POAHEC, and AMD in this study were 0.579, and 0.523, respectively. The Stone-Geisser (Q2) values were 0.579 for POAHEC, and 0.523 for AMD, all of which were acceptable (greater than 0).

From Table 7, we can conclude that (1) organizational justice has a significant effect on perceived organizational adaptation to hindering external conditions at a p-value < 0.001 and $\beta = 0.761$, (2) perceived organizational adaptation to hindering external conditions is positively associated with acceptance of management decisions at a p-value < 0.001 and $\beta = 0.723$. Therefore, H1 and H2 were both supported.

4. Discussion

Due to the ongoing pandemic-related changes in the socio-economic environment, managers face an extremely difficult challenge of keeping the organizations they manage alive by adapting them to a changing and unstable environment. While making decisions that adapt the organization to changes in the environment, managers simultaneously influenced the course of adaptation at the individual level. The accuracy of these decisions and the efficiency with which they were enforced influenced employees' work comfort and performance, depending on the extent to which the job resources provided by managers allowed employees to offset the

external demands that hindered their work (Demerouti et al., 2001; Hobfoll, 1989; Dollard et al., 2013). The way they experienced and assessed the decisions of leaders thus had a bearing on their individual adaptation, but further within the feedback loop on group and organizational adaptation. Therefore, based on a series of four studies, using qualitative and quantitative methods, we developed and validated a new construct to measure employees' perceived organizational adaptation to hindering external conditions. While previous attempts to examine the interactions of organizations with the environment focused on organizational properties defined more broadly, such as organizational readiness for change (Lehman et al., 2002) or organizational resilience (Lee et al., 2013), this study is the first to propose and empirically validate the tool to measure the perceived organizational adaptation to hindering external circumstances.

Collectively, our findings supported the reliability and convergent validity of the POAHEC scale. Studies 1 and 2 provided a formal definition of the concept. In study 3, a 7-item POAHEC scale was developed and demonstrated convergent validity. In study 4, nomological validity was established by examining the POAHEC scale as a predictor of two other variables (organizational justice and acceptance of management decisions). Building on previous literature and findings (Folger, Konovsky, 1989; Dollard et al., 2013), we found that organizational adaptation to hindering external conditions is better perceived by employees when they systematically experience organizational justice, and an increase in POAHEC leads to greater employee acceptance for management decisions made in response to hindering external conditions, such as COVID-19.

4.1. Contributions to knowledge

With the approach applied, our study makes a number of contributions to existing knowledge about the phenomenon of organizational adaptation. Firstly, unlike previous attempts to measure more generally and broadly understood organization-environment interactions, this work takes into account the phenomenon of organizational adaptation to a specific situation in the environment, such as a pandemic, war, natural disaster, etc., which impedes the smooth functioning of the organization. Second, this research contributes to the literature by responding to the call by Ruppel et al. (2022) for studies applying an employee-centered perspective to perceptions of environmental challenges, such as pandemic situations. Third, this research adds to the existing organizational behavior literature by providing further insight into the influence of proposed construct on organizational justice and acceptance of management decisions.

4.2. Practical implications

This study provides important guidelines for management practice, especially useful in the face of increasing destabilizing activities in the environment. First, a pandemic should be treated like many other hindering external demands in the workplace that require an adequate

response from managers to reduce their negative impact. The job resources they provide, the procedures introduced, and the routines developed will determine the adaptability of employees and, consequently, the entire organization. Therefore, second, this study offers managers an easy-to-administer measurement tool for employees to evaluate decisions made in response to a pandemic or similar external event that hinders the organization's operations and requires it to adapt. We believe that the proposed scale will help raise managers' awareness of employees' concerns in the workplace, and through the evaluative feedback they receive from it will allow them to develop procedures to prevent psychological contract violations as a result of future disruptions (Gong, Sims, 2023).

Although the COVID-19 lockdowns were largely shifted in late 2022, and the end of the pandemic was officially declared by WHO in May 2023, similar hindering circumstances are likely to face business organizations in not-distant future. These challenges might include new pandemics, wars, the social effects of automation, or pervasive artificial intelligence. Gaining a deeper comprehension of how organizations adapt to the hindering conditions created by pandemics may help anticipate, comprehend, and enhance responses to similar problems in the future.

5. Limitations and future research directions

Every time a new construct is introduced, new questions and research possibilities arise. From methodological concerns to theoretical viewpoints, we examine limits and provide options for future study that might help validate and extend our current findings.

Although guidelines for the process of scale validation are widely described in the literature, many limitations of the process have been identified (Morgado, Meireles, Neves, Amaral, Ferreira, 2018). In particular, it should be noted that each measure has limitations in its initial form, so additional psychometric testing of the POAHEC measurement tool is required. The present work provides only preliminary evidence of nomological validity, construct validity and reliability. Future research should focus on determining additional degrees of criterion-relevance, reliability and test-retest use. The psychometric properties of the POAHEC scale can be rigorously tested again to demonstrate its usefulness in different industries, and different types of organizations and in the face of various external conditions that impede their smooth operation.

Experts and practitioners from Poland participated in all stages of the scale development process. The scale was developed in the Polish language version. Therefore, issues related to the cultural context in which the study was conducted should be taken into account and generalizations to other cultural contexts should be treated with due caution. Given this

limitation and future research directions, researchers may choose to replicate the study in other cultural contexts and work environments.

It should be emphasized that this study adopted a cross-sectional design. This approach may limit the ability to assess causal relationships (Boyar, Campbell, Mosley, Carson, 2014; Akter, D'Ambra, Ray, 2013). To address this issue and gain a deeper understanding of the construct presented, we suggest conducting a longitudinal study (Schlosser, McNaughton 2009; Morean, Corbin, Treat, 2012). The use of longitudinal studies will allow for a better assessment of the predictive validity of the POAHEC scale. Therefore, it is recommended that future studies include a longitudinal approach, which will provide greater insight into the scale design itself and also allow for a better assessment of predictive accuracy. However, this will be difficult due to the need to conduct such research in specific and unusual – hindering – conditions, which are difficult to plan and intentionally replicate. These special conditions may limit the ability to conduct longitudinal studies to indicate how the instrument will behave over time.

We used a self-report format to develop the POAHEC scale, but we recognize that self-report is not without limitations (Haeffel, Howard, 2010). In particular, it is emphasized that a common method bias may result from the use of self-report measures (Podsakoff, MacKenzie, Lee, Podsakoff, 2003). Our intention was to develop a scale that would capture perceptions in the context of hindering external conditions. Capturing perception would be difficult, e.g. through observation. Therefore, participants themselves seem to be the best informants of their own perceptions, especially at this early stage of conceptualization. Moreover, it is believed that self-report measures are the most logical approach to assess employee perceptions in the context of e.g. performance management systems (Keeping, Levy, 2000), because it is employees themselves who have the greatest ability to articulate their experiences (Chang, Wang, Huang, 2013). One of the more frequently reported limitations of self-report data is also memory bias (Kupek, 2002). We eliminated the memory bias by conducting tests in hindering external conditions. Additionally, our study, conducted in the hindering conditions did not require a high level of insight from the respondents, which means that another limitation of the use of self-repot study does not apply here (Haeffel, Howard, 2010). The above-mentioned arguments confirm the choice of self-report measures for examining employee perceptions, and the psychometric properties of the scale indicate that it may be useful both in research and in practical applications.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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