

Resilience Analysis of MSME Employees' Work Ethic During and After the COVID-19 Pandemic: A Chow Test Approach

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The COVID-19 pandemic has significantly disrupted the operations of Micro, Small, and Medium Enterprises (MSMEs), especially in tourism-related regions such as Magelang. These disruptions not only affected business continuity but also increased stress levels among employees. This study aims to analyze the resilience of the work ethic of MSME employees during and after the pandemic using the Chow-Test. The theoretical framework integrates Affective Events Theory, the Transactional Stress Model, and Human Capital Theory to examine how challenge and hindrance stressors influence discretionary behaviors (citizenship and counterproductive behavior), with emotional reactions and work experience as mediating and moderating variables. A stratified random sampling technique was employed to collect primary data from 385 MSME owners and employees in Magelang. Data was analyzed using Structural Equation Modeling (SEM) and Chow-Test. The findings confirm that employee work ethic, particularly citizenship behavior, demonstrated strong resilience across both pandemic and post-pandemic periods. This supports the hypothesis that there is no significant difference in work ethic between the two periods. However, limitations include the geographic focus on one region and reliance on self-reported data. Future research should explore broader regions and consider longitudinal methods. This study provides practical insights for MSMEs to sustain performance through employee resilience in times of crisis.

1. Introduction

1.1 Background

Since the Covid-19 outbreak was officially classified as a pandemic, it has had an impact on numerous sectors of both the national and global economy (1),(2). The pandemic's effects are most strongly felt within the micro, small, and medium enterprise (MSME) sector (3),(4),(5),(6). According to April 2020 data from the Ministry of Cooperatives and SMEs, 56% of MSMEs reported a decline in sales turnover as a result of the Covid-19 pandemic, 22% faced challenges in accessing financing or credit, 15% encountered issues in goods distribution, and the remaining 4% experienced difficulties in sourcing raw materials (www.kemenkopukm.go.id).

According to the Indonesian Central Bank (BI), around 95.4% of all exporters—primarily those from the MSME sector—were the most severely impacted (www.bi.go.id)(7),(8). MSMEs operating in the handicraft and tourism-related sectors were impacted by 89.9%. In contrast, the agricultural sector experienced the lowest impact from the Covid-19 pandemic, at 41.5%. At the

entrepreneurial level, data from the Ministry of Cooperatives and SMEs indicated that MSMEs in the wholesale and retail trade were the most affected (40.92%), followed by those in the accommodation, food, and beverage sector (26.86%), while the processing industry was the least impacted (14.25%)^{(2),(9)}.

This situation also has a psychological impact on employees who work in the MSME sector⁽¹⁰⁾. The level of stress faced by owners and employees in dealing with the Covid-19 pandemic and post-pandemic period requires them to find a level of innovation to keep their business sustainable⁽¹¹⁾. Stress is a term that is often spoken by someone, both in jest and when serious. However, what is the true meaning of stress itself, the term stress itself comes from the Latin term "stringere" which means tension and pressure. According to ⁽¹²⁾ stress is an unexpected reaction that arises as a result of high environmental demands on a person. Stress is a state that arises when there is a disparity between one's desired circumstances and their biological, psychological, or social condition.

Based on the results of a recent study conducted by ⁽¹²⁾, workers in Indonesia are increasingly stressed. The survey was researched based on the opinions of more than 16,000 professional workers around the world, It was revealed that over half of Indonesian workers (64%) reported higher stress levels compared to the previous year (Jaringnews.com). The research also focused on finding solutions and found that more than half (64%) of Indonesian respondents identified flexible working as one way to reduce stress. One of the key findings of the study was that the main causes of stress were work (73%), management (39%), and personal finance (36%).

Discretionary behavior is freedom of action. It remains unclear how stress and hindrance stress relate to discretionary behavior (citizenship and counterproductive behavior)⁽¹³⁾. Citizenship behavior encompasses voluntary activities that extend beyond an employee's official responsibilities but play a role in enhancing the organization's overall effectiveness. Whereas counterproductive behaviors are behaviors that are negative in nature, which are detrimental to the organization^{(13),(14)}.

Several articles have discussed the relationship between specific job stress and specific discretionary behaviors. ⁽¹⁵⁾ examined the relationship between stress (challenges and hindrance) and learning performance and found that challenge stress is positively related to learning performance and hindrance stress has a negative effect on learning performance, and burnout and motivation to learn mediate the relationship of challenge and hindrance stress to shopping performance. In addition, ⁽¹⁶⁾ in their research also found that challenge stress is positively related to job satisfaction, organizational commitment, and negatively related to turnover intentions, turnover. Hindrance stress is also associated with lower job satisfaction and reduced organizational commitment, while being positively linked to turnover intentions, actual turnover, and withdrawal behaviors.

The relationship between specific stress (challenges and hindrance) and discretionary behavior (citizenship and counterproductive behavior)⁽¹⁷⁾. The results found that challenge stress has an indirect positive effect on citizenship behavior mediated by attention and an indirect negative effect on citizenship behavior mediated by anxiety. As well as indirectly related to counterproductive behavior mediated by anxiety. Regarding hindrance stress, it has an indirect positive relationship with counterproductive behavior mediated by anger and anxiety. It is also indirectly negatively related to citizenship behavior mediated by anxiety.

Although some previous studies have analyzed the relationship of stress specifically to discretionary behavior, they have not explored this relationship at a broader level. Consequently, a comprehensive understanding of the complete performance-related impacts of challenge and hindrance stressors remains limited. This means that these studies have not provided a full performance-based understanding of the consequences of challenge and hindrance stressors.

This study is an extension of previous research conducted by (17), to build and test a model of the relationship between challenge stress and hindrance to discretionary behavior. The within-individual approach was used to build and test this model, for several reasons namely: (1) This method aligns with the established theoretical framework, Affective Events Theory(18), which suggests that fluctuations in emotions predict and influence work behavior; (2) this design allows us to accurately capture emotions, which are typically defined by their short-term or transient nature (19) and (3) emphasizing dynamic relationships adds to the body of literature on challenge and hindrance stress, as well as on citizenship and counterproductive behaviors. The within-individual approach allows for assessing diurnal variation and potential covariance between different pairs of these stressors and discretionary behaviors.

Building on the model used, this research integrates Affective Events Theory (AET); (18), Transactional Stress Model (20), and Human Capital Theory in (21). Where focusing on the stress process, the transactional stress model, and Human Capital Theory provides useful thinking for different emotional reactions (either positive or negative) to challenge stress and hindrances. The similarity of this research with previous research(17), is in the use of Affective Event Theory and Transactional Model Theory in the construction of research models. So, this study adopts the use of stress variables (hindrance and challenges), emotions (attention, anxiety, and anger), discretionary behavior (citizenship and counterproductive behavior), and personality (extraversion and neuroticism).

The difference between this study and previous research is the addition of experience variables (experience and inexperience) as moderators, because (17) research still does not pay attention to a person's work experience. Work experience refers to the process of developing knowledge or skills related to job methods through an employee's direct involvement in performing their duties. According to (21) revealed that experience facilitates cognitive simplification of work-related routines and behaviors. Human Capital Theory (21) suggests that more experienced employees perform better than new employees to do the job, because they have many skills on the job. Furthermore, feelings of stress are more likely to be facilitated by aspects of performance that have been well learnt (experienced), because individuals under stress are more likely to direct their attention to tasks that they understand. (21) research based on Human Capital Theory which tested experience as moderating the relationship between stress and performance, produced a positive coefficient.

This concept is what distinguishes this research from previous studies that only integrate the two theories, Affective Event Theory (AET) and the Transactional Stress Model. Furthermore, the second difference lies in the object of research. The object of this research is MSMEs in Magelang city and regency. The object was chosen as the object of research for several reasons. First, MSMEs in Magelang city and regency are areas close to tourism, especially Borobudur, which of course the tourism sector has the biggest impact on PSBB, especially MSMEs in the area. Second, both during-pandemic respondents and post-pandemic respondents of MSMEs in Magelang city and regency are MSMEs for the food cluster, which is quite large in number. Provide specific details that led to the formulation of the research question or hypothesis.

1.2 Problem Statement

Knowing the level of resilience of the work ethic of MSME employees during the pandemic and post-pandemic.

1.3 Objectives and Scope

The results of this study are expected to contribute to the vision of the institution which has been outlined in the vision of the Islamic Sustainability Accounting study programme and the research strategic plan for Strengthening Entrepreneurship, Cooperatives, and MSMEs. This research provides

a study of the relationship between challenge stress and hindrance stress and discretionary behavior. This research is also expected to be used as additional information and references for knowledge development, especially in behavioral accounting research.

Hypothesis the work ethic of MSME employees has the same resilience during the pandemic and post-pandemic periods. Research Model in Figure 1. Describe about Two types of stress: Challenges and Hindrances. Personality: Extraversion and Neuroticism., Emotional Reactions: Attentiveness, Anxiety, and Anger. Experience: Experience and Inexperience, Discretionary Behavior: Citizenship Behavior and Counterproductive Behavior.

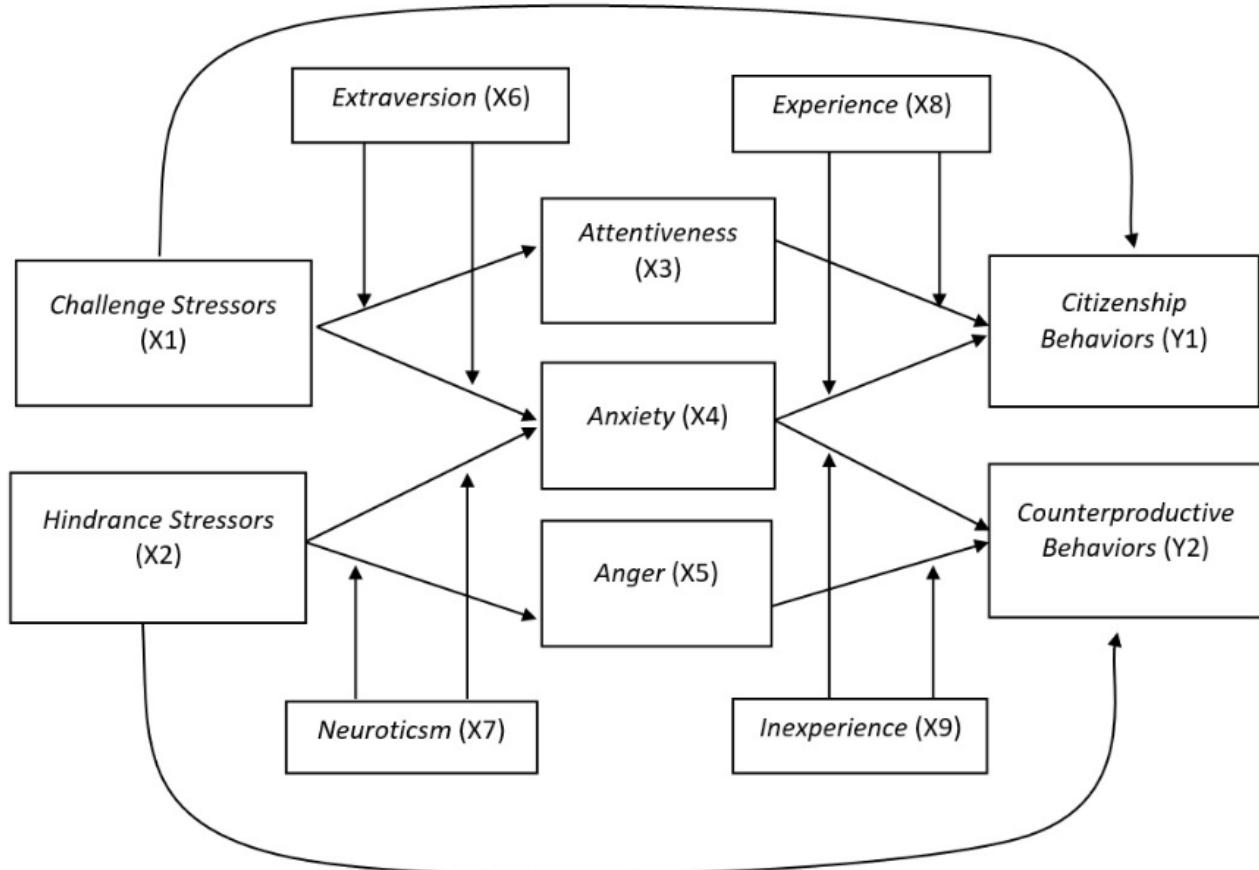


Figure 1. Research model

2. Literature Review

Affective Events Theory is a workplace event that causes an employee's emotional reaction which then affects attitudes and behaviors at work. Affective Events Theory focuses on emotional reactions to workplace events (18). This theory acknowledges that emotional responses vary over time, forming patterns that can be anticipated based on work events. Based on this theory, workplace stressors in the form of challenges are prime examples of affective events that can generate emotional responses.

Thus, according to Effective Event Theory that challenge is a positive work stress, where when someone assesses work demands as an opportunity for growth, learning, and goal achievement, it will provide a positive emotional reaction that fosters an attitude of attention and vigilance. So, it can be concluded that challenge stress has a unidirectional relationship with the emotion of

attention. Or it can be said that a person's level of attention and supervision will increase when a person views a job demand as a challenge of stress.

2.1 Relationship of Hindrance Stress to Anger

Hindrance stress is defined as job demands perceived as barriers to personal development or as factors that obstruct or impede an individual's ability to attain important goals. Hindrance stress tends to provoke negative emotions, as it is perceived to obstruct personal development and hinder the attainment of goals (22).

Anger is more likely to be triggered when hindrance stress is present. This is because when a person perceives a job demand as an obstacle in achieving a valued outcome, it will lead to a negative reaction in that person. (20) proposed that anger is a response to a clear threat or concrete attack that hurts one's basic values. Anger is a negative emotional reaction. Negative emotions are the result of harm and threats to valued outcomes (20). Supporting this assertion, research has identified a positive correlation between anger and various stressors—such as role ambiguity, role conflict, and constraints—which can be classified as hindrance stressors (23). Reinforced by the results of (17) study which found that hindrance stress is significantly positively related to anger.

2.2 The Relationship of Challenges and Hindrances Stress to Anxiety

Anxiety is a feeling of nervousness, fear, doubt that arises in a person due to something. Anxiety is different from anger, as it is a response to uncertainty (20) which is likely to be a product of both challenge stress and hindrance stress. Anxiety is an anticipatory emotion that may arise from threats both real and potential to one's values. (17) contend that challenge stressors pose a potential threat because they inherently involve a certain degree of uncertainty. In contrast, hindrance stressors constitute an actual threat, as they are perceived to impede the attainment of valued outcomes.

Anxiety can lead to both positive and negative discretionary behavior (in this case both citizenship behavior and counterproductive behavior). Anxiety may be related to both challenge and hindrance stress. Boswell et al, 2004; LePine et al, 2005 state that challenge and hindrance stress is an increase in tension/strain and emotional exhaustion, steps that may have an implicit element of anxiety. It can be said that anxiety is a negative emotional reaction from the stress of challenges and hindrances which is a type of stress. The results of (17) research found that the stress of challenges and hindrances is positively related to anxiety.

2.3 The Relationship of Challenge Stress to Citizenship Behavior Mediated by Attention

Discretionary behavior can be seen as an outlet that can be used to respond to emotions and serves as emotion-focused coping (24). Emotion-focused coping involves strategies aimed at regulating emotional responses to stressful situations (24). This is in line with the Transactional Stress Model which views people and their environment in a dynamic, reciprocal and interactive relationship. It regards stressors as a person's perceptual response rooted in process and cognition. A key component of the Transactional Stress Model is the process of appraising the encounter (24). By incorporating Affective Events Theory, the focus of this research is less on the cognitive processes underlying stress appraisal (primary and secondary appraisal) and more on the affective state generated by the stressor or encounter. From this viewpoint, emotions arising from stressful challenges and hindrances drive both citizenship and counterproductive behaviors, which can serve as coping mechanisms for employees facing stressful situations.

Citizenship behaviors are optional behaviors that are neither part of an employee's formal work obligations nor support the effective functioning of the organization. People who experience positive emotions are more actively engaged in citizenship behavior (25). High attention to pleasantness and engagement (26), Two conditions align with the fundamental nature of

citizenship behavior (e.g., helping and keeping up with organizational development). Challenge stress is indirectly significantly positively related to citizenship behavior mediated by mindfulness (27).

2.4 The Relationship of Hindrances Stress to Anger-Mediated Counterproductive Behavior

Counterproductive behavior is voluntary behavior that violates significant organizational norms and thus threatens the well-being of the organization or its members, or both(28). Counterproductive behavior is behavior that is negative in nature, which is detrimental to the organization. Individuals may also engage in certain behaviors as a way to alleviate negative emotions. (29) propose that negative emotions can trigger action tendencies aimed at reducing such feelings. Focusing on the specific emotion of anger, (20) argued that it may lead to revenge behaviors as a way to restore self-worth and address harm caused by losses or threats to personal values.

anger is positively related to theft, sabotage, and absenteeism(29). Hostility in individuals was positively related to daily counterproductive behavior(30). Hindrance stress has a significant positive indirect relationship to counterproductive behavior mediated by anger(17).

2.5. The Relationship of Challenge Stress to Citizenship Behavior Mediated by Anxiety

Challenge stress refers to job demands perceived by employees as meaningful experiences that offer opportunities for personal growth. Anxiety, as another form of negative emotion, can also serve as a driver of behavior. Anxiety is an act of avoidance and escape (20). Avoidance provides a means to alleviate stress while allowing individuals to gradually identify and address the threats that cause anxiety. For instance, an employee facing high levels of complexity and responsibility may mentally distance themselves from their work unit as a result of anxiety. Such an avoidance response is likely to reduce prosocial behaviors, including seeking greater involvement in work-related activities. This shows that it would be inconsistent with citizenship behavior, which is positively related to the organization. The results of (17) study support this, that challenge stress has a significant negative indirect relationship with citizenship behavior mediated by anxiety.

2.6. The Relationship of Hindrance Stress to Counterproductive Behavior Mediated by Anxiety

Counterproductive behavior is voluntary behavior that violates significant organizational norms and thus threatens the well-being of the organization or its members, or both(30). Counterproductive behavior is behavior that is negative in nature, which is detrimental to the organization. Anxiety is feeling nervous, and anxious. Anxiety can also result in more intense psychological and physical withdrawal from one's work. Most classifications of counterproductive behaviors include forms of behavioral withdrawal, such as arriving late, taking extended breaks, leaving work early, and skipping meetings. For instance, an employee facing administrative and bureaucratic difficulties may physically disengage from the workplace as a coping mechanism for anxiety. This indicates that anxiety is likely to be positively correlated with counterproductive behavior. This is in line with the Transactional Stress Model. Hindrance stress was indirectly significantly positively related to counterproductive behavior mediated by anxiety(17).

2.7 The Relationship of Challenge Stress to Counterproductive Behavior Mediated by Anxiety

Challenge and hindrance stress will show a positive relationship with anxiety (20),(15). Since anxiety is related to avoidant action tendencies (20) it is expected that anxiety will decrease

citizenship behavior and increase counterproductive behavior. This is in line with the Transactional Stress Model.

Therefore, rather than suggesting that challenge stress is relevant only for "good behavior" (Hypothesis 6), believing that their relationship with anxiety would provide another conceptual rationale for the stressor-discretionary behavior relationship. (17) in their study found that challenge stress has a positive indirect relationship with counterproductive behavior mediated by anxiety. That is, challenge stress can indirectly increase counterproductive behavior by increasing anxiety. Modelling these additional predictions allows for examining the full-spectrum emotion-based response to stressors.

2.8 The Relationship of Hindrance Stress to Citizenship Behavior Mediated by Anxiety

The stress of challenges and hindrances will show a positive relationship with anxiety (15),(20). Since anxiety is related to avoidant action tendencies (20) it is expected that anxiety will decrease citizenship behavior and increase counterproductive behavior. This is in line with the Transactional Stress Model.

Therefore, rather than suggesting that hindrance stress is relevant only for "bad behavior", believing that their relationship with anxiety would provide another conceptual rationale for the relationship of stress and discretionary behavior. The results of (17) study found that hindrance stress is indirectly negatively significantly related to citizenship behavior mediated by anxiety. That is, hindrance stress can indirectly decrease citizenship behavior by increasing anxiety emotions. Modelling these additional predictions allows for the examination of full-spectrum emotion-based responses to stressors.

2.9 The Relationship of Challenge Stress to Mindfulness, and the Relationship of Challenge Stress to Anxiety Moderated by Extraversion

In accordance with Affective Events Theory's model that the potential of an individual's disposition to influence the impact of work activities results in affective reactions, we expected that people high in extraversion would tend to respond more positively to stressful challenges. Specifically, researchers expected that the influence of extraversion might be seen in two events: either by amplifying the effects of challenge stress on attention or by reducing the effects of challenge stress on anxiety.

2.10 The Relationship of Hindrance stress to Anxiety, and the Relationship of Hindrance stress to Anger, Moderated by Neuroticism

Neurotic individuals tend to react more negatively to stimuli that produce negative emotions when they occur in anger (31). This variation in reactivity arises from the strong link between neuroticism and behavioral systems attuned to punishment cues. Neuroticism influences emotional reactions to stress, with individuals high in neuroticism more likely to exhibit negative emotions when faced with stressful situations (17) (31) found that neuroticism moderates the relationship of hindrance stress to anger.

2.11 The Relationship of Attentiveness to Citizenship Behaviors, and the Relationship of Anxiety to Citizenship Behaviors Moderated by Experience

The stress that leads to higher performance occurs in employees who have higher commitment and work experience (32). In addition, theoretically, that either commitment or work experience is likely to influence the relationship between stress and performance. Affective commitment is positively related to performance. Work experience positively moderates the relationship between commitment and performance.

Work experience will also provide an explanation of the effect of discretionary behavior. Anxiety, which is a negative emotional reaction, is predicted to be negatively related to positive

discretionary behavior (in this case citizenship behavior). The hope is that high work experience will reduce the effect of negative emotional reactions (in this case anxiety) so that a person will still have positive discretionary behavior (in this case citizenship behavior). This means that the relationship between anxiety and citizenship behavior will be less negative if work experience is high.

2.12 Resilience Analysis using Chow-Test on Employee Work Ethic during Pandemic and Post-Pandemic Periods

The prediction given is that if the work experience is low (inexperience), a negative emotional reaction (in this case anxiety) will be positively related to negative discretionary behavior (in this case counterproductive behavior). This means that the relationship between anxiety and counterproductive behavior will be more positive when work experience is low or inexperienced.

3. Methodology

3.1 Sampling Technique

The samples of this study were owners and employees of MSMEs during the pandemic and post-pandemic periods in Magelang city and regency. The sampling technique is the process of selecting a sufficient number of elements from a population so that studying the sample and understanding its characteristics enables researchers to generalize those characteristics to the entire population. The sampling technique used in this study uses a stratified random sampling approach, meaning that the population is first divided into meaningful segments and followed by random selection of subjects from each segment. In this study, employees from various MSME business units in Magelang city and regency will be divided into two segments: during-pandemic respondents and post-pandemic respondents.

3.2 Sources and Methods of Data Collection

This study utilizes subject data (self-report data), which refers to research data containing opinions, attitudes, experiences, or characteristics of individuals or groups serving as research subjects (respondents). The data source for this research is primary data, which refers to information collected directly by the researchers concerning the variables of interest for the specific objectives of the study. The data in this study were collected using the questionnaire method, which involves providing respondents with a series of written questions or statements to be answered.

3.3 Data Analysis Tools

The data in this study were analyzed using the Structural Equation Modelling (SEM) approach. SEM is a statistical method that examines the patterns of relationships between latent constructs and their indicators, among the latent constructs themselves, as well as with direct measurement errors. As a branch of multivariate dependent statistics, SEM enables the simultaneous analysis of multiple dependent and independent variables.

3.4 Student involvement in research

The students involved in this research consisted of 2 upper semester students. The students were involved in data search and data processing.

4. Results

4.1. Data procession result

a. Descriptive Statistics

1) Questionnaire Distribution

Table 1. shows the process of distributing questionnaires in this study.

Table 1. Questionnaire Distribution and Receipt Process

Description	Post	During
Planned questionnaire	650	640
Distributed questionnaires	420	410
Not returned questionnaires	12	8
Returned questionnaires	408	402
Questionnaires that can be processed	385	385
Percentage of questionnaires returned	97 %	98%
Percentage of processed questionnaires	91 %	94%

Source: Processed Primary Data, 2023

2) Respondent Demographics

Table 2 shows the demographics of the respondents of this study. Respondents' demographics consist of gender, marital status, work status and tenure. Based on Table 2, the number of respondents who have worked for less than 2 years is 157. Meanwhile, for respondents who have a tenure of more than 2 years as many as 228.

Table 2. Research Description

	Description	Frequency	Percentage
Gender	a. Male	140	36 %
	b. Female	245	64 %
Marital Status	a. Single	145	37 %
	b. Married	185	48 %
	c. Widow/Widower	55	15 %
Employee Status	a. Permanent Staff	195	51 %
	b. Non-permanent Employee	190	49 %
Period of Service	a. Less than 1 Year	22	6 %
	b. Between 1-2 Years	135	35 %
	c. Between 3-5 Years	115	30 %
	d. More than 5 Years	113	29 %

Source: Processed Primary Data, 2023

3) Descriptive Statistics of Research Variables

Table 3 presents the findings from the descriptive statistical analysis of the variables. The results in Table 3 show the descriptive function of each variable used in the study. The minimum value indicates the lowest magnitude of each variable, while the maximum value is the highest value achieved by each variable.

Table 3. Statistical Description

	N	Minimum	Maximum	Mean	Std Deviation
CS	385	1,000	5,000	3,63929	0,463649
HS	385	1,375	5,000	3,25130	0,461222
ATTEN	385	1,000	5,000	3,71775	0,669257
ANX	385	1,0	5,0	1,814	0,7315
ANG	385	1,0	4,5	1,586	0,7398
CiBI	385	1,375	4,750	2,98831	0,551345
CoBI	385	1,000	4,143	1,47347	0,505338
EXTRA	385	1,000	4,625	3,18279	0,417205
NEURO	385	1,000	4,750	2,706649	0,495970

	N	Minimum	Maximum	Mean	Std Deviation
EXPER	385	1,5	3,8	2,534	0,3633
INEX	385	2,0	4,3	3,408	0,3701
Valid N (listwise)	385				

Source: Processed Primary Data, 2023

b. Data Quality Test

1) Reliability Test

This study measure's reliability using composite reliability. The construct of each variable is said to be reliable if the composite reliability value is above 0.70.

Respondents Integration

The composite reliability value for testing the integration model of each variable is presented in Table 4. Based on Table 6, it shows that the composite reliability value of all research variables is above 0.70, so it can be said to be reliable.

Table 4. Final Results of *Composite Reliability* Output (Data Integration)

Composite Reliability Coefficients											
CS	HS	ATTEN	ANX	ANG	CiBI	CoBI	EXTRA	NEURO	EXPER	INEX	
0,788	0,787	0,878	0,813	0,898	0,888	0,810	0,890	0,877	0,811	0,803	

Source: Processed PLS Data, 2023

2) Validity Test

A research instrument is said to be valid if the square roots AVE value in the diagonal column is higher than the correlation between latent variables in the same column (above or below).

Respondents Integration

Testing the integration model with integration data obtained the results of the square roots average variance extracted (AVE) value as follows. Based on Table 5, it shows that all research instruments are valid.

Table 5. Hasil Akhir Output *Square Roots Average Variance Extracted (AVE)*
(Integration of Respondent)

	CS	HS	ATTEN	ANX	ANG	CiBI	CoBI	EXTRA	NEURO	EXPER	INEX
CS	(0.564)	0.221	0.398	-0.177	-0.261	0.278	-0.158	-0.177	-0.176	-0.235	0.253
HS	0.221	(0.559)	0.068	0.181	0.148	0.183	0.178	0.192	0.218	0.160	-0.042
ATTEN	0.398	0.068	(0.782)	-0.102	-0.317	0.329	-0.206	0.192	-0.119	-0.278	0.308
ANX	-0.177	0.181	-0.102	(0.867)	0.429	0.060	0.312	0.292	0.309	0.249	-0.186
ANG	-0.261	0.148	-0.317	0.429	(0.856)	-0.060	0.426	0.275	0.440	0.324	-0.262
CiBI	0.278	0.183	0.329	0.060	-0.060	(0.617)	0.043	0.055	-0.029	-0.064	0.091
CoBI	-0.158	0.178	-0.206	0.312	0.426	0.043	(0.708)	0.170	0.285	0.210	-0.259
EXTRA	-0.177	0.192	-0.014	0.292	0.275	0.055	0.170	(0.853)	0.435	0.246	-0.194
NEURO	-0.176	0.218	-0.119	0.309	0.440	-0.029	0.285	0.435	(0.752)	0.271	-0.281
EXPER	-0.235	0.160	-0.278	0.249	0.324	-0.064	0.210	0.246	0.271	(0.653)	-0.396
INEX	0.253	-0.042	0.308	-0.186	-0.262	0.091	-0.259	-0.194	-0.281	-0.396	(0.610)

Note: Square roots of average variances extracted (AVE's) shown on diagonal.

Source: Processed PLS Output, 2023

c. Hypothesis Test

1) Structural Model Testing (*Inner Model*)

The results of *re-run inner model* testing in this study are as follows:

a) *Output General Results*

The general results output values of the three research models are presented in Table 6. Based on the general results output summary in Table 6, it can be concluded that the three research models have fulfilled the goodness of fit criteria.

Table 6. Summary of General Result Output

During the Pandemic		Post-pandemic		Overall	
Model Fit Indices	P-value	Model Fit Indices	P-value	Model Fit Indices	P-value
APC	0.147	P<0.001	0.156	P<0.001	0.143
ARS	0.165	P=0.543	0.239	P=0.009	0.188
AVIF	1.568	< 5	1.891	< 5	1.553
Ket. APC and AVIF values fulfil the criteria of <i>goodness of fit</i>		APC, ARS, and AVIF values fulfil the <i>goodness of fit</i> criteria.		APC, ARS, and AVIF values fulfil the <i>goodness of fit</i> criteria.	

Source: Processed PLS Output, 2023

b) *Model Output*

The results of the Inner Model test output on each research model are presented in Figure 2, Figure 3, and Figure 4. The decision of H_0 is accepted or not accepted is given based on the resulting p-value. In the indirect effect test results, the P-value on each research model will be summarized in Table 7. The results of the conclusion testing the entire model will be summarized in Table 8.

5. Discussion

a. Relationship between Challenge stress and Attention

Based on the test results on respondents during the pandemic, it shows that challenge stress has a positive effect on attention. This also applies to post-pandemic respondents. It is also consistent on the integration of respondents that show the same results. This finding empirically supports the Affective Events Theory, where events at work cause emotional reactions in employees which then affect attitudes and behaviors in the workplace and are consistent with the research of (17).

Table 7. Summary of Indirect Effect and Total Effect Values on CiBI and CoBI

Pathway connection	Mediator	Respondents	Total effect		Indirect Effect	
			P-value	B	P-value	B
CS against CiBI	ATTEN & ANX	When	0,183	0,104	0,461	0,006
		After	0,020**	0,207	0,012**	0,111
		Integration	<0,001***	0,222	0,007*	0,083
HS against CoBI	ANG & ANX	When	0,218	-0,097	0,069*	-0,082
		After	0,144	0,112	0,079*	0,067
		Integration	0,014**	0,186	0,021**	0,060
CS against CoBI	ANX	When	0,026**	-0,254	0,107	-0,032
		After	0,255	0,091	0,062*	-0,052
		Integration	0,077*	-0,141	0,022**	-0,033
HS against CiBI	ANX	When	0,006***	0,291	0,398	0,006
		After	0,121	0,267	0,084*	0,033
		Integration	0,035**	0,209	0,081*	0,021

Description:

***= Significance at 1%

**= Significance at 5%

*= Marginal significance at 10%

Source: Processed PLS Output, 2023

b. Relationship of Hindrance stresss to Anger

Based on the results of PLS testing of the integration data, it is found that a person views a job demand as a challenge stress, which will increase the emergence of anger reactions in that person. However, this does not apply to during-pandemic respondents, and post-pandemic respondents. Overall, the results of this study support Affective Events Theory, and are consistent with the research of (17).

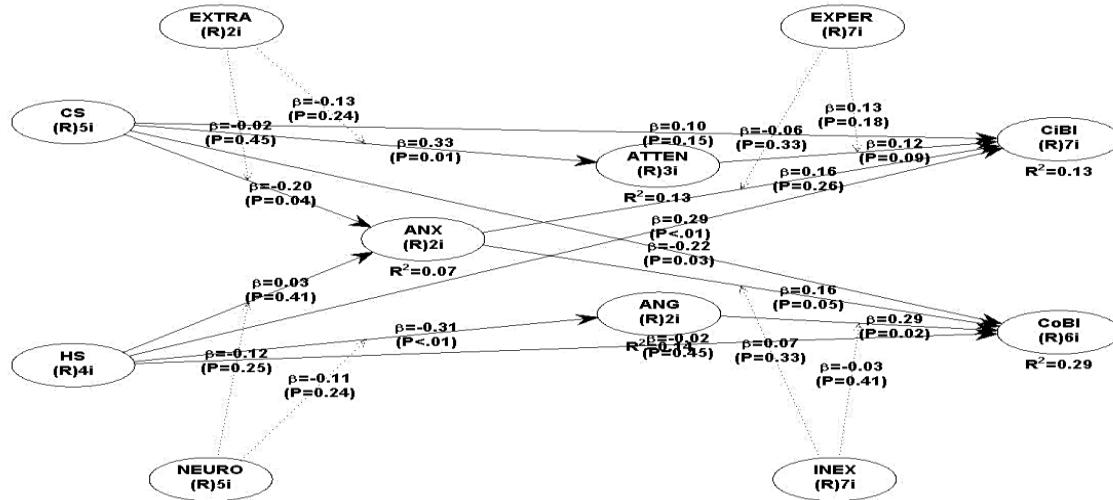


Figure 2 Output Results of the During-Pandemic Respondent Model

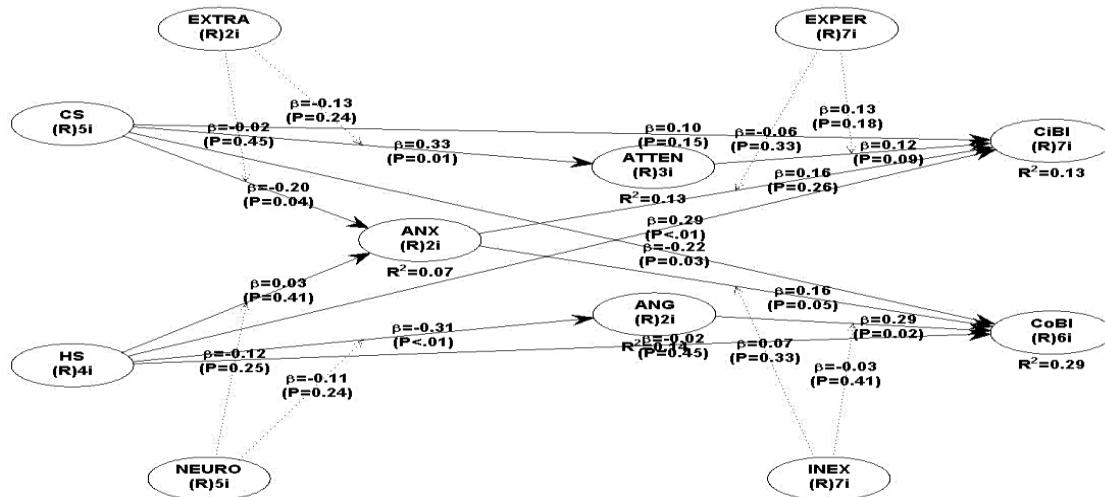


Figure 3 Post-Pandemic Respondent Model Output Results

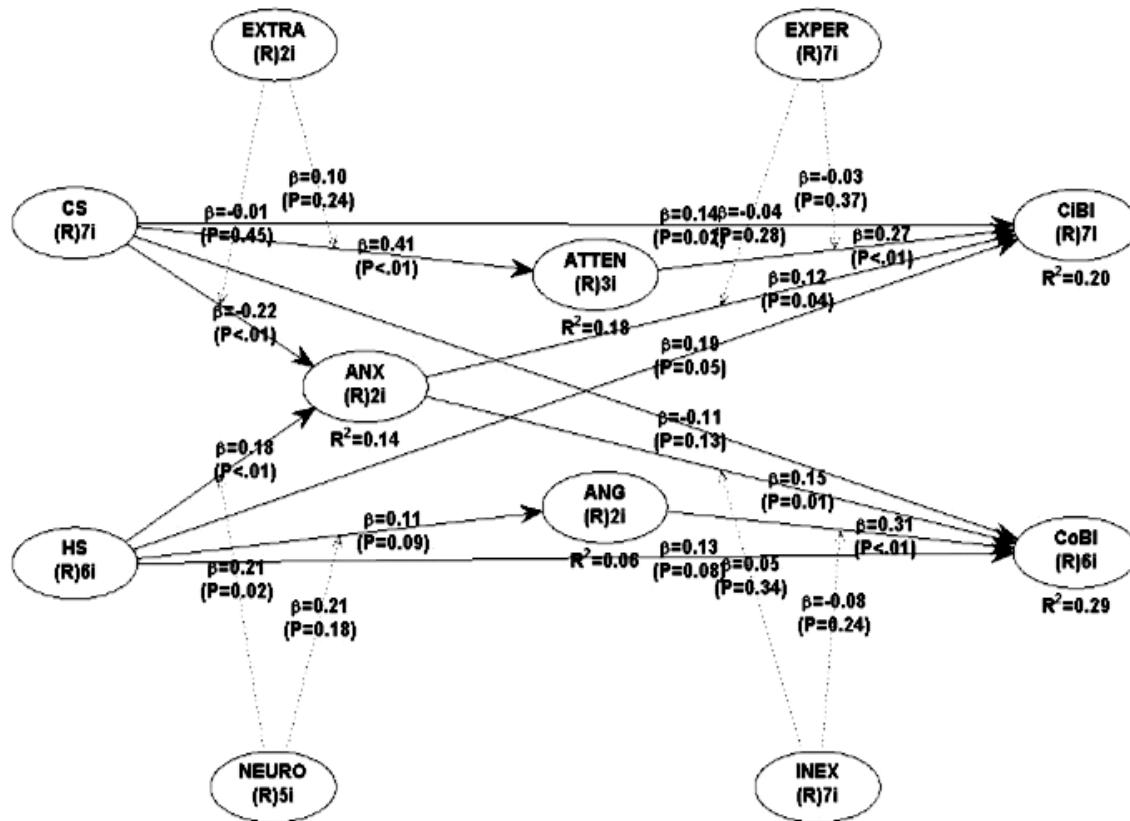


Figure 4 Output Model Results of Integration Respondents

c. The Relationship of Challenge Stressors and Hindrance Stressors to Anxiety

Based on the results of testing integration data, it proves that challenge stressor has a negative effect on anxiety. This also applies to both during-pandemic and post-pandemic respondents. The test results based on integration data show that hindrance stressor has a positive effect on anxiety. However, this does not apply to respondents during the pandemic, because hindrance stressor has no effect on anxiety. The results of integrative hypothesis testing do not support Effective Events Theory and contradict the research of (17). On the other hand, the results support Effective Events Theory and are consistent with (17).

d. The Relationship of Challenge stress to Citizenship Behavior Mediated by Attentiveness

The results of integration testing also show the same results, meaning that these results can show the real conditions. Empirically, the results of this study support the combination of Effective Events Theory and the Transactional Stress Model and are consistent with the results of (17).

e. The Relationship of Hindrance Stressor to Counterproductive Behavior Mediated by Anger

The results of integration data testing proved that hindrance stressors are indirectly positively related to counterproductive behavior mediated by anger. This effect is consistent with the assertion that people respond to hindrance stressor (e.g., red tape, multiple roles, role conflict, hassles) with anger because the stress is perceived as a threat (20). Furthermore, this negative emotional reaction leads to an increase in counterproductive behaviors as an attempt to manage the negative experience (20).

However, this finding does not apply to respondents during the pandemic, because increased hindrance stressor reduces a person to behave negatively (counterproductive behavior) followed by an increase in angry reactions. For post-pandemic respondents, it also does not apply, because there is no indirect relationship. Overall, the results of this study are in line with the Affective Events Theory and the Transactional Stress Model and are consistent with the results of the research by (17).

f. The Relationship of Challenge Stressor to Citizenship Behavior Mediated by Anxiety

Based on the results of testing the integration data, when a person considers a job demand as a challenge stressor and accompanied by an increase in the anxiety reaction response, it will reduce a person's citizenship behavior. This also applies to post-pandemic respondents but does not apply to respondents during the pandemic. These findings empirically support the incorporation of Effective Events Theory and the Transactional Stress Model and are consistent with the results of (17).

g. The Relationship of Hindrance Stressor to Counterproductive Behavior Mediated by Anxiety

The results of the overall data analysis show that when a person perceives job demands as hindrance stressors, it will increase the anxiety response, which in turn leads to an increase in counterproductive behavior. This is also true for post-pandemic respondents, but not for during-pandemic respondents. Because, in respondents during the pandemic, anxiety tends not to have a mediating effect on the relationship between hindrance stressor and counterproductive behavior. This can be justified that hindrance stressor does not encourage respondents during a pandemic to respond to the emotional reaction of anxiety.

Table 8. Summary of Hypothesis Testing Conclusion Results

Hypothesis & Prediction	Post-Pandemic			During the Pandemic			Theory Consistency
	β	P-value	Ket	B	P-value	Ket	
H 1 (+) Positive	Sig	Accepted	Positive	Sig	Accepted	Consistent	
H 2 (+) Negative	Sig	Not Accepted	Positive	Not Sig	Not Accepted	Inconsistent	
H 3a (+) Negative	Sig	Not Accepted	Negative	Sig	Not Accepted	Inconsistent	
H 3b (+) Positive	Not Sig	Not Accepted	Positive	Sig	Accepted	Inconsistent	
H 4 (+) Positive	Sig	Accepted	Positive	Sig	Accepted	Consistent	
H 5 (+) Negative	Sig	Not Accepted	Positive	Not Sig	Not Accepted	Inconsistent	
H 6 (-) Negative	Not Sig	Not Accepted	Negative	Sig	Accepted	Inconsistent	
H 7 (+) Positive	Not Sig	Not Accepted	Positive	Sig	Accepted	Inconsistent	
H 8 (+) Negative	Not Sig	Not Accepted	Negative	Sig	Not Accepted	Inconsistent	
H 9 (-) Positive	Not Sig	Not Accepted	Positive	Sig	Not Accepted	Inconsistent	
H 10a (+) Negative	Not Sig	Not Accepted	Positive	Sig	Accepted	Inconsistent	
H 10b (+) Negative	Not Sig	Not Accepted	Positive	Not Sig	Not Accepted	Inconsistent	
H 11a (+) Negative	Not Sig	Not Accepted	Positive	Sig	Accepted	Inconsistent	
H 11b (+) Negative	Not Sig	Not Accepted	Positive	Sig	Accepted	Inconsistent	
H 12a (+) Positive	Not Sig	Not Accepted	Positive	Not Sig	Not Accepted	Inconsistent	
H 12b (+) Negative	Not Sig	Not Accepted	Positive	Not Sig	Not Accepted	Inconsistent	
H 13a (+) Positive	Not Sig	Not Accepted	Negative	Not Sig	Not Accepted	Inconsistent	
H 13b (+) Negative	Not Sig	Not Accepted	Negative	Not Sig	Not Accepted	Inconsistent	

h. The Relationship of Challenge Stressor to Counterproductive Behavior Mediated by Anxiety

Testing the integration data showed that the challenge stressor was indirectly negatively related to counterproductive behavior with anxiety as a mediator. This was not the case for respondents

during the pandemic. The results show that the effects of challenge stressors are relevant to positive behavior.

A challenge stressor refers more to positive things (opportunities for growth, learning, and goal achievement and can also minimise a person to behave negatively (counterproductive) by controlling negative emotional responses (anxiety). Moreover, post-pandemic respondents indicated to have strong cognitive processes. This result cannot support the combination of Effective Events Theory and the Transactional Stress Model and contradicts the results of (17) research.

i. Resilience Analysis using Chow-Test on Employee Work Ethic during Pandemic and Post-Pandemic Periods

Table 9. Chow-Test Analysis Results Employee Work Ethic Pandemic and Post-Pandemic Periods

	Work Ethic (Citizenship Behavior)		t-statistics
	Post Pandemic	During Pandemic	
Regression coefficient ()	0,008	-0,321	
t count	0,163	-2,253	2,384
degree of freedom (df)	298	257	
Sum Square of Error (SSE)	4,495	23,475	

$$\begin{aligned}
 t &= \frac{0,008 - (-0,321)}{\sqrt{4,495 + 23,475}} \cdot \sqrt{\frac{(0,008)^2 \cdot (298)}{(0,163)^2 \cdot 4,495} + \frac{(-0,321)^2 \cdot (257)}{(-2,253)^2 \cdot 23,475}} \\
 t &= \frac{\sqrt{27,971}}{555} \cdot \sqrt{\frac{0,000064 \cdot 298}{0,026569 \cdot 4,495} + \frac{0,103 \cdot 257}{5,076 \cdot 23,475}} \\
 t &= \frac{\sqrt{0,050}}{0,329} \cdot \sqrt{\frac{0,019}{0,119} + \frac{26,471}{119,159}} \\
 t &= \frac{\sqrt{0,050}}{0,329} \cdot \sqrt{(0,160 + 0,222)} \\
 t &= \frac{\sqrt{0,050}}{0,329} \cdot 0,382 \\
 t &= \frac{0,329}{\sqrt{0,019}} \\
 t &= \frac{0,329}{0,138} \\
 t &= 2,384
 \end{aligned}$$

The prediction is that if work experience is low or inexperienced, negative emotional reactions (in this case anxiety) will be positively related to negative discretionary behavior (in this case counterproductive behavior). This means that the relationship between anxiety and counterproductive behavior will be more positive when work experience is low or inexperienced. The t table value at df = 257 and the 5% error rate for the analysis is 1.969. The results of the analysis show that the t value (2.384) > t table, so it can be said that employee work ethic as seen from Citizenship Behavior in the during-pandemic and post-pandemic periods has a strong level of resilience for MSMEs in Magelang City and Regency. This shows that the empirical results in this study of employee work ethic as seen from Citizenship Behavior in the during-pandemic and post-pandemic periods have a strong level of resilience for MSMEs in Magelang City and

Regency. It means that the finding successfully supports H1, meaning that it is in accordance with the hypothesis which states that the work ethic of MSME employees has the same resilience between the period during the pandemic and the post-pandemic period. Thus, it means that Work Ethic (Citizenship Behavior) can make the performance of MSMEs stronger in facing difficult times, for example in the pandemic period.

Affective Events Theory and the Transactional Stress Model can be successfully proven in this research study, and the results of this study are also consistent with the results of (17). The existence of work ethics is an important factor that must be considered by MSMEs in dealing with all the bad conditions that occur. This means that Citizenship Behavior affects the performance of MSMEs, because the amount of Citizenship Behavior can overcome negative attitudes in the form of anxiety in the face of difficult times that will be faced. The better the Citizenship behavior expressed, the anxiety can be suppressed.

6. Conclusion

The results of the resilience analysis using the Chow-Test test show that the empirical results in this study of employee work ethic as seen from Citizenship Behavior in the during-pandemic and post-pandemic periods have a strong level of resilience for MSMEs in Magelang City and Regency. successfully supports H1, meaning that it is in accordance with the hypothesis which states that the work ethic of MSME employees has the same resilience between the period during the pandemic and the post-pandemic period. Thus, it means that Work Ethic (Citizenship Behavior) can make the performance of MSMEs stronger in facing difficult times such as during covid-19 pandemic.

7. Recommendation

Future research should explore broader regions and consider longitudinal methods. This study provides practical insights for MSMEs to sustain performance through employee resilience in times of crisis.

REFERENCES

- [1] Naseer, S., Khalid, S., Parveen, S., Abbass, K., Song, H., & Achim M V. COVID-19 outbreak: Impact on global economy. *Front public Heal.* 2023;10(1009393).
- [2] Lavida, A. B. A., Yuliani, N. L., Susanto, B., Utami, P. S., & Prasetya WA. An Examination of The Antecedents and Mediating Mechanisms Influencing The Performance of Micro, Small, and Medium Enterprises (MSMEs). *Proceeding Int Conf Econ Manag Account.* 2024;2(1):219–33.
- [3] Takeda, A., Truong, H. T., & Sonobe T. The impacts of the COVID-19 pandemic on micro, small, and medium enterprises in Asia and their digitalization responses. *J Asian Econ* , 2022;82(101533).
- [4] Saturwa, H. N., Suharno, S., & Ahmad AA. The impact of Covid-19 pandemic on MSMEs. *J Ekon Dan Bisnis.* 2021;24(1):65–82.
- [5] Susanto, B., Yuliani, N. L., Utami, P. S., & Darmadi RA. Analysis of business performance determination of transportation companies during post Covid-19 in Indonesia. *BIS Econ Bus.* 2025;2(V225014-V225014).
- [6] Purwantini AH, Prasetya WA, Hidayati LLA, Maharani B, Aligarh F. Driving Sustainability Performance in Indonesian SMEs: The Role of Cloud-Based Accounting Information Systems and Digital Transformation. In: E3S Web of Conferences. EDP Sciences; 2025. p. 3010.

- [7] Susanto B, Yuliani NL. Prospek implementasi SAK ETAP berbasis kualitas laporan keuangan UMKM. Magelang Univ Muhammadiyah Magelang. 2015;
- [8] Ibrahim MW, Niagasi AF, Trisyandhi YF. Determinants Of Smes Profitability: Do Firm Size And Age Still Matters? *J Manaj Bisnis dan Terap.* 2024;2(1):79–96.
- [9] Susanto B. Total Quality Management, Performance Measurement System, Rewards And Organizational Commitment To Performance Of Employees. *J Bisnis Ekon.* 2016;14(1):76–83.
- [10] Christanty L, Nugroho WS, Nurcahyono N, Maharani B. Accounting Information Systems and Financial Literacy impact on SMEs' performance. *MAKSIMUM Media Akunt Univ Muhammadiyah Semarang.* 2023;13(1):59–69.
- [11] Lailla N, Utama RE, Jamilah SJS, Nugroho WS, irfan Tarmizi M. Pentingnya Pengetahuan Bagi Pelaku Usaha Umkm Samama: Pengaruh Knowledge Management Terhadap Peningkatan Kinerja Umkm Samama. *Benefit J Manaj dan Bisnis.* 2024;52–63.
- [12] Rahmat I, Pawestri F, Saputro RA, Widianingrum S, Hanifah T. Psychosocial problems among psychiatric nurses for caring patients with mental disorders during the COVID-19 pandemic. *Nurs Res Pract.* 2023;2023(1):3689759.
- [13] Pedersen KZ, Pors AS. Discretionary responses in frontline encounters: Balancing standardization with the ethics of office. *J Public Adm Res Theory.* 2023;33(1):80–93.
- [14] Ahmed MAO, Zhang J, Fouad AS, Mousa K, Nour HM. The dark side of leadership: How toxic leadership fuels counterproductive work behaviors through organizational cynicism and injustice. *Sustainability.* 2024;17(1):105.
- [15] LePine JA, Podsakoff NP, LePine MA. A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Acad Manag J.* 2005;48(5):764–75.
- [16] Podsakoff NP, LePine JA, LePine MA. Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: a meta-analysis. *J Appl Psychol.* 2007;92(2):438.
- [17] Rodell JB, Judge TA. Can “good” stressors spark “bad” behaviors? The mediating role of emotions in links of challenge and hindrance stressors with citizenship and counterproductive behaviors. *J Appl Psychol.* 2009;94(6):1438.
- [18] Weiss HM, Cropanzano R. Affective events theory. *Res Organ Behav.* 1996;18(1):1–74.
- [19] De Leersnyder J, Mesquita B, Boiger M. What has culture got to do with emotions. *Handb Adv Cult Psychol.* 2021;8(62):62–119.
- [20] Lazarus RS. Progress on a cognitive-motivational-relational theory of emotion. *Am Psychol.* 1991;46(8):819.
- [21] Hunter LW, Thatcher SMB. Feeling the heat: Effects of stress, commitment, and job experience on job performance. *Acad Manag J.* 2007;50(4):953–68.
- [22] Cavanaugh MA, Boswell WR, Roehling M V, Boudreau JW. An empirical examination of self-reported work stress among US managers. *J Appl Psychol.* 2000;85(1):65.
- [23] Chen PY, Spector PE. Relationships of work stressors with aggression, withdrawal, theft and substance use: An exploratory study. *J Occup Organ Psychol.* 1992;65(3):177–84.
- [24] Yuan Q, Tan TH, Wang P, Poremski D, Abdin E, Magadi H, et al. A modified transactional model of stress and coping on depressive symptoms among informal caregivers of persons with dementia. *Sci Rep.* 2024;14(1):25507.
- [25] Armstrong R, Babri M, Herath GB, Kask J. Change, well-being and meaning in organizations: reflections and recommendations for future research [Guest editorial]. *Int J Organ Theory Behav* 2024, vol 27, num 3, p 161-167. 2024;
- [26] Berryman SM. Veterans and Higher Education: How Military Service Affects the College

Student Experience. University of Arkansas at Little Rock; 2024.

- [27] Jobbehdar Nourafkan N, Tanova C, Gokmenoglu KK. Can mindfulness improve organizational citizenship and innovative behaviors through its impact on well-being among academics? *Psychol Rep.* 2023;126(4):2027-48.
- [28] Shirahada K, Zhang Y. Counterproductive knowledge behavior in volunteer work: perspectives from the theory of planned behavior and well-being theory. *J Knowl Manag.* 2022;26(11):22-41.
- [29] Spector PE, Fox S. An emotion-centered model of voluntary work behavior: Some parallels between counterproductive work behavior and organizational citizenship behavior. *Hum Resour Manag Rev.* 2002;12(2):269-92.
- [30] Meisler G, Drory A, Vigoda-Gadot E. Perceived organizational politics and counterproductive work behavior: The mediating role of hostility. *Pers Rev.* 2020;49(8):1505-17.
- [31] Maciantowicz O, Zajenkowski M. Is narcissistic anger fueled by neuroticism? The relationship between grandiose and vulnerable narcissism, neuroticism, and trait anger. *Curr Psychol.* 2020;39:1674-81.
- [32] Javaheri N, Oliaei N, Rafiei F, Mahmoudi M. The relationship between workplace bullying and job stress among nurses working in emergency departments: a cross-sectional study. *BMC Emerg Med.* 2025;25(1):51.