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The Effect of Financial Stress on Psychological Distress with Social Support as a Moderator in Karawang Manufacturing Employees

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Abstract

The manufacturing sector is a major contributor to Indonesia's economic growth; however, its demanding work environment increases the risk of psychological distress among employees. Karawang Regency, as one of Indonesia's key industrial areas, employs a large manufacturing workforce. Financial stress resulting from economic instability is considered an important factor influencing employees' psychological well-being. This study aims to examine the effect of financial stress on psychological distress and investigate whether social support moderates this relationship among manufacturing employees in Karawang. Using a quantitative approach, primary data were collected through a Google Forms survey involving 312 employees of a manufacturing company in Karawang. The study employed the Kessler Psychological Distress Scale (K10), Financial Stress Scale (FSS), and Multidimensional Scale of Perceived Social Support (MSPSS). Data were analyzed using Moderated Regression Analysis (MRA) with JASP software. The results indicate that financial stress has a significant positive effect on psychological distress, while social support has a significant negative effect. Furthermore, the interaction effect demonstrates that social support significantly weakens the impact of financial stress on psychological distress. The model explains 51.7% of the variance in psychological distress. These findings suggest that financial stress is a significant risk factor for employee mental well-being, whereas social support functions as an important protective factor. Therefore, organizations should strengthen social support mechanisms in the workplace to help reduce the adverse psychological effects of financial stress and improve employee well-being.

KEYWORDS

financial stress; psychological distress; social support; manufacturing employees.

Introduction

The manufacturing industry faces high work pressure and contributes significantly to the rise in workers' mental health problems. This sector transforms raw materials into finished or semi-finished products with added value through mechanical processes, both machine-based and non-machine-based. The manufacturing sector is the foundation of a country's economy in the era of globalization and rapid economic growth (Maulana et al., 2023) . The manufacturing industry sector is a key sector in the structure of the Indonesian economy, contributing significantly to the national Gross Domestic Product (GDP) (Harahap et al., 2026) . One of the strategic industrial areas and the largest manufacturing industry center in Indonesia is Karawang Regency (Fildzah & Irwansyah, 2025) . According to the Central Statistics Agency (BPS) Karawang, the manufacturing sector has been able to absorb around 30.09% of the total working population (BPS-Statistics Indonesia Karawang, 2025) . The Karawang Regency Minimum Wage (UMK) is the second highest in Indonesia with a 6.5% increase from the previous year (Idris, 2025)

These high wage levels do not automatically reflect workers' financial well-being. Data from the Central Statistics Agency (BPS) shows that Indonesia's annual inflation is in the range of 2.6%–3.0%, with the largest contribution coming from food, housing, and

transportation expenditures, which are the main components of workers' needs (BPS-Statistics Indonesia, 2025)

Workers' household expenditures are also dominated by the consumption of basic necessities, which continues to increase, so that a large portion of income is absorbed to meet routine needs. This condition is exacerbated by the burden of family responsibilities, debt obligations, and household economic uncertainty. This situation shows that high wage levels can persist alongside economic pressures, so workers still have the potential to experience *financial stress* even at relatively high income levels (Mirowsky & Ross, 2017) .

The characteristics of work in the manufacturing sector, such as *shift work systems,* long working hours, and production target pressures, increase the risk of *psychological distress* in employees (Ganster & Rosen, 2013). *Psychological distress* is a non-specific psychological discomfort characterized by the emergence of emotional symptoms such as anxiety, sadness, mental fatigue, and loss of interest, which can interfere with an individual's functioning in daily life (Kessler et al., 2012) . This condition differs from clinical disorders such as major depression or anxiety disorders because it does not always meet diagnostic criteria, but still reflects a significant impairment of psychological well-being (Drapeau et al., 2012) . *Psychological distress* represents a spectrum of mild to moderate emotional disorders that arise in response to chronic psychosocial stress, including economic pressures and work demands (LaMontagne et al., 2008). Measurement of this condition in research generally uses *the Kessler Psychological Distress Scale (K10)* instrument that assesses the frequency of symptoms over a certain period of time (Kessler et al., 2012) . Workers experiencing *psychological distress* tend to exhibit symptoms of anxiety, mild to moderate depression, emotional exhaustion, and decreased concentration, which directly impact work performance and quality of life (Keramat et al., 2025) . Research shows that changing economic conditions and increasing job insecurity are closely related to an increased risk of psychological distress in workers (Burgard & Seelye, 2017) .

Economic stress is a major determinant of worsening workers' psychological well-being. *Financial stress* arises when individuals lack sufficient income or resources to meet their financial needs, leading to psychological distress and difficulties in daily life (Friedline et al., 2021) . This condition reflects an imbalance between income and expenses, rising living costs, and economic uncertainty. Financial insecurity increases feelings of insecurity and worry, ultimately contributing to *psychological distress* (Mirowsky & Ross, 2017) . Research shows that *financial stress* has a strong relationship with anxiety, depression, and psychological exhaustion (Adams et al., 2016) . Other empirical findings indicate that *financial stress* significantly influences *psychological distress* in workers (Nasir et al., 2025) . Statistics Indonesia (BPS-Statistics Indonesia, 2025) indicates that increasing household consumption costs and economic instability remain major challenges for workers in Indonesia. *The World Health Organization* (2022) also confirms that financial stress and job insecurity are major determinants of mental health disorders in the working population.

Social support is a protective factor that plays a role in reducing the negative impact of economic stress on an individual's psychological condition. Social support is defined as emotional, instrumental, and informational assistance that an individual receives from a meaningful social environment (Zimet, Dahlem, Zimet, et al., 1988) . The social support received by an individual is directly related to increased psychological well-being and decreased psychological distress (Mason, 2016) . In the conceptual framework of this study, *financial stress* is positioned as the independent variable (X), *psychological distress* as the dependent variable (Y), and social support as the moderator variable (Z). Social support plays a role in weakening the influence of *financial stress* on *psychological distress,* so that individuals with high levels of social support have more adaptive *coping abilities in dealing with financial stress. This mechanism is in line with the concept of the buffering effect* which explains that social support acts as a protective factor that can reduce the negative impact of stress on an individual's mental health (Shavitt et al., 2016) . Previous research has shown that social support is effective in weakening the relationship between stress and psychological disorders (Deol & Singh, 2015) .

Previous research indicates that studies on *psychological distress* and *financial stress* have been conducted primarily in populations in developed countries and non-manufacturing sectors (Burns et al., 2023) . A study by (Adams et al., 2016) examined the direct relationship between *financial stress* and mental health without examining moderating mechanisms. A study by (Nasir et al., 2025) also only examined the direct effect of *financial stress* on *psychological distress* in workers without including social support as an interaction factor. Other studies generally view social support as an important factor that directly influences various psychological and behavioral outcomes of individuals, regardless of the level of stress experienced (Lin et al., 2016) . This situation indicates that there are still limitations in the literature related to testing a moderation model that integrates *financial stress, psychological distress,* and social support, especially in the context of manufacturing industry workers in developing countries like Indonesia.

This research offers specific and measurable innovations. The first innovation lies in testing a moderation model that explicitly positions social support as a variable influencing the strength of the relationship between *financial stress* and *psychological distress*, a finding that has not been widely tested in previous research. The second innovation lies in the research context: manufacturing industry workers in Karawang, a strategic industrial area with unique work pressures and economic dynamics. The third innovation lies in the integration of industrial psychology approaches and the local economic context in explaining the mechanisms of work stress among workers in developing countries.

The purpose of this study is to examine the relationship between *financial stress*, social support, and *psychological distress* among manufacturing industry employees in Karawang. Based on this objective, the research hypothesis is formulated as follows:

H1: *Financial stress* has a positive effect on *psychological distress.*

H2: Social support has a negative effect on *psychological distress.*

H3: Social support moderates the effect of *financial stress* on *psychological distress*, so that the relationship becomes weaker at high levels of social support.

This research is expected to enrich the literature in industrial and organizational psychology, particularly regarding the moderating mechanisms in the relationship between financial stress and employee mental health. The findings are also expected to inform companies' design of policies that focus not only on financial aspects but also on strengthening social support in the workplace to improve employee psychological well-being.

Methods

Types of research

This study used *a cross-sectional quantitative survey design* with moderation analysis. The quantitative approach was used to test the theory through numerical measurement of

variables and statistical analysis to obtain valid generalizations. (Sugiyono, 2020)

In this study, *moderated regression analysis* (MRA) was used to examine the role of moderator variables. Moderator variables are variables that can strengthen, weaken, or change the direction of the relationship between an independent variable and a dependent variable (Sugiyono, 2020) . This concept of moderation is also supported by (Kossek et al., 2017) , who state that moderation occurs when the influence of an independent variable on a dependent variable differs depending on the level of a third variable, indicating a change in the strength or direction of the relationship.

In the context of this research, social support is hypothesized to act as a *buffering variable,* that is, a variable that weakens *the* influence of *financial stress* on *psychological distress.* This concept aligns with social support's role as a protective mechanism that can weaken the relationship between stress and psychological disorders (Faherty et al., 2016) .

This study aims to determine the direction, strength, and significance of the influence of *financial stress* on *psychological distress* with social support as a moderator variable. The dependent variable (Y) is *psychological distress,* the independent variable (X) is *financial stress,* and the moderator variable (Z) is social support.

Population and Sample

The population of this study was manufacturing industry workers in Karawang. The sampling technique used was *non-probability sampling* with the *quota sampling method,* which involves selecting samples based on certain criteria until the required number is met. (Sugiyono, 2020) . Respondent inclusion criteria include: minimum age 18 years, have worked for at least 6 months, and status as a contract or permanent employee in a manufacturing company. The sample size was determined using *power analysis* referring to (J. Cohen, 1985) , assuming a moderate *effect size* ($f^2 = 0.15$), a significance level ($\alpha = 0.05$), statistical power (*power = 0.80*), and the number of predictors of three (independent variable, moderator, and interaction). Based on these parameters, the minimum recommended sample size is approximately 77 respondents. However, this study involved 312 respondents to increase the stability of the estimates and the accuracy of the model. The use of *non-probability sampling* limits the level of representativeness of the sample, so generalization of the research results is carried out carefully.

Research Location

This research was conducted in Karawang, one of Indonesia's largest manufacturing centers. According to data from the Karawang Regency Central Statistics Agency (2025), the manufacturing sector employs approximately 30.09% of the region's workforce. Furthermore, Karawang is a strategic industrial area with various integrated industrial estates (Ministry of Industry, 2021) . This makes Karawang a relevant context for examining *psychological distress* in workers, particularly as it relates to *financial stress* and social support.

Research Instruments

This study used three internationally validated psychological scales. *Psychological distress* was measured using *the Kessler Psychological Distress Scale* (K10) (Kessler et al., 2012) . *Financial stress* was measured using *the Financial Stress Scale* (FSS). (Heo et al., 2020) . Social support was measured using *the Multidimensional Scale of Perceived Social Support* (MSPSS) (Zimet, Dahlem, Sara G. Zimet, et al., 1988) . All instruments used a five-point Likert scale.

Before being used in this study, all instruments underwent a process of linguistic and cultural adaptation into Indonesian, a process that adhered to *cross-cultural adaptation guidelines*. The first stage was *forward translation,* which involved two independent bilingual translators translating the original instruments from English into Indonesian. The resulting translations were then synthesized into a single version.

The second stage is *back-translation,* where the agreed Indonesian version is translated back into English by another translator who does not know the original version of the instrument, to ensure equivalence of meaning.

Next, *an expert review was conducted* by psychology experts to evaluate the content suitability, language clarity, and cultural adaptation *of* each item. Revisions were made based on expert input to ensure content *validity.*

The next stage was a tryout *of* the instrument on respondents with characteristics similar to those of the research subjects. The data from the tryout was used to test the instrument's validity and reliability. Items that did not meet the criteria were revised or eliminated. Through this series of processes, the Indonesian versions of the K10, FSS, and MSPSS were declared to have met linguistic and cultural equivalence and were suitable for use in this study.

Validity and Reliability Test

The content validity test using Aiken's V showed the following values: *psychological distress:* 0.69–0.94 *financial stress: 0.63–0.94* social support: 0.81–0.94. The *corrected item–total correlation analysis* showed that all items had values above 0.30, thus being declared valid.

Reliability test using Cronbach's Alpha shows: *psychological distress* = 0.885 *financial stress* = 0.957 social support = 0.915 These values indicate that all instruments have high to very high reliability (Azwar, 2022)

Data Collection Procedures

Research data were collected online using Google Forms in March 2026. The research procedures included: (1) instrument development, (2) implementation of a trial of the measuring instrument, (3) validity and reliability testing, and (4) distribution of questionnaires to respondents who met the criteria. Before completing the questionnaire, respondents were given information regarding the purpose of the research, data confidentiality, and the right to participate voluntarily through *informed consent.*

Data analysis

Data analysis was carried out using *the JASP 0.95.4.0 application* at a significance level of 95% ($\alpha = 0.05$).

Regression Assumption Test

The normality test was performed on the residuals of the regression model using *the Shapiro-Wilk test,* with the criteria of $p > 0.05$. Thus, the assumption of normality in this study refers to the distribution of residuals, not the distribution of each variable (Sugiyono, 2020). The linearity test was performed through *scatterplot analysis* and residual distribution. The relationship is declared linear if the distribution pattern of points approaches a straight line and the residuals are randomly distributed without a specific pattern.

Moderated Regression Analysis

The analysis was conducted using *Moderated Regression Analysis (MRA)* by including interaction variables between *financial stress* and social support to test the moderating effect.

Significance Test and Coefficient of Determination

Partial effects were tested using the t-test, while simultaneous effects were tested using the F-test. The

coefficient of determination (R^2) was used to assess the contribution of independent and moderator variables to the dependent variable.

Categorization Test

Categorization tests are used to group levels of *financial stress, psychological distress,* and social support based on the distribution of respondents' scores.

Result and Discussion

A total of 312 employees who had worked in a manufacturing company for at least six months and were 18 years of age or older were involved in this study in Karawang Regency, both on active status (permanent and contract). The respondent demographics can be seen in Table 1.

Based on Table 1, the majority of respondents were male (66.35%), while females made up 33.65%. Most respondents were in the 26–32 age range (53.85%). Based on employment status, the majority of respondents were permanent employees (64.74%), followed by contract employees (29.17%), and outsourced employees (6.09%). In terms of length of service, the majority of respondents had worked for more than 6 years (48.08%).

Normality Test

As one of the assumptions in regression analysis, normality tests are performed on the residuals of the regression model, not on each research variable. Therefore, normality was tested using *the Shapiro–Wilk test* on the residual values generated from the regression model (Table 2).

The results of the residual normality test using *the Shapiro–Wilk test* showed a significance value *($p < 0.05$),* which indicates that the residuals are not completely normally distributed statistically. However, based on visual inspection using the *Normal Probability Plot (P–P Plot) graph,* the residual points are spread around the diagonal line.

It should be noted that the values in the table represent an approximation based on the general distribution of research data. With a large sample size (N = 312), based on the *central limit theorem,* the residual distribution can be considered approximately normal. Thus, the normality assumption in the regression model is met.

Linearity Test and Regression Assumptions

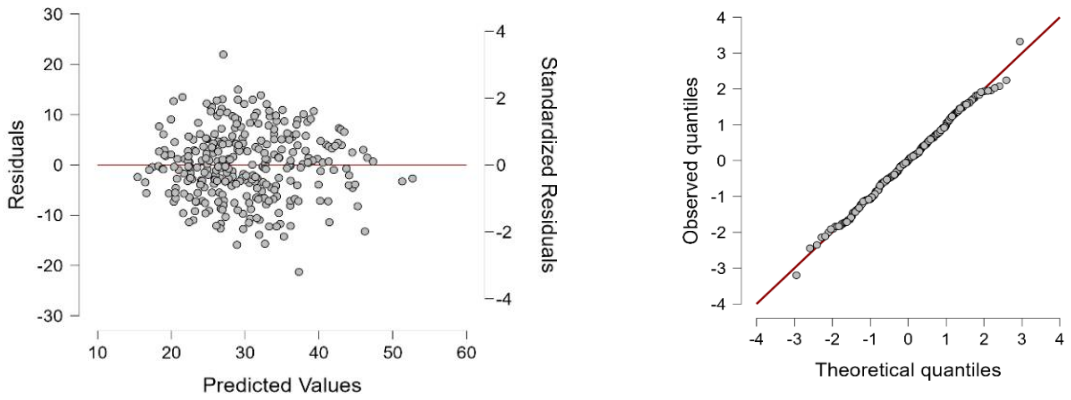
Linearity testing was performed through graphical analysis *of Residuals vs. Predicted Values* and *the Normal QQ Plot.* The analysis results in Figure 1 show that the residual points are randomly distributed without forming a specific pattern, thus indicating the absence of a non-linear relationship

Table 1. Respondent Demographics

Criteria	Information	Total	Percentage
Gender	Woman	105	33.65%
	Man	207	66.35%
Age	20–25 years	47	15.06%
	26–32 years	168	53.85%
	33–39 years	88	28.21%
	>40 years	9	2.88%
Employee Status	Permanent employees	202	64.74%
	Contract employees	91	29.17%
	Outsourcing Employees	19	6.09%
Length of work	< 1 year	13	4.17%
	1–3 years	63	20.19%
	4–6 years	86	27.56%
	>6 years	150	48.08%
Total		312	100%

Table 2. Normality Test based on Descriptive Statistics

Information	Mark
N	312
Mean Residual	0.000
Standard Deviation	9,568
Shapiro–Wilk	0.978
Sig. (p-value)	<.001



(a) Residuals vs. Predicted (b) QQ Plot Standardized Residuals

Figure 1. Linearity Test

Table 3. Moderated Regression Model

Predictor	B	Std. Error	Beta	t	p	95% CI
(Intercept)	29.90	0.380	-	78.76	<0.001	29.16 to 30.65
financial stress	0.297	0.019	0.628	15.78	<0.001	0.260 to 0.334
Social support	-0.220	0.036	-0.247	-6,189	<0.001	-0.290 to -0.150
Interaction of *financial stress* and social support	-0.007	0.002	-0.150	-3,783	<0.001	-0.010 to -0.003

between the independent and dependent variables. In addition, in *the QQ Plot* (Figure 2), the residual points follow a diagonal line, indicating that the residuals are approximately normally distributed.

Thus, the assumptions of linearity and normality of residuals in the regression model can be declared fulfilled based on the results of the graphic visualization. Furthermore, before conducting the moderated regression analysis, several checks were conducted to ensure the model's feasibility. First, a heteroscedasticity test was conducted through a scatterplot analysis of the residuals and predicted values. The results showed that the distribution of the residual points did not form a specific pattern, such as conical or widening, thus concluding that the model met the homoscedasticity assumption and did not exhibit heteroscedasticity. Second, *the financial stress* and *social support variables* were *mean-centered* before forming the interaction variable. This was done to reduce the potential for multicollinearity in the moderated regression analysis.

By fulfilling the assumptions of linearity, residual normality, and homoscedasticity, the moderated regression model in this study is declared suitable for use in hypothesis testing.

Moderated *Regression Analysis (MRA*)

In this model, *psychological distress* is the dependent variable, *financial stress* is the main predictor, and *social support* is the moderator variable.

The results of the analysis show that *financial stress* has a positive and significant effect on *psychological distress* (B = 0.297; $p < 0.001$), social support has a negative and significant effect on *psychological distress* (B = -0.220; $p < 0.001$), the interaction between *financial stress* and *social support* is significant (B = -0.007; $p < 0.001$) (see Table 3).

The negative interaction coefficient indicates that social support weakens the influence of *financial stress* on *psychological distress,* thus acting as a moderating variable.

Practical Meaning of Moderation Effect

The interaction coefficient (B = -0.007) indicates that each one-unit increase in social support reduces the strength of the relationship between *financial stress* and *psychological distress* by 0.007 units. Substantively, this means that individuals with higher levels of social support tend to be better able to mitigate the impact of financial stress on their psychological well-being.

Simple Slope Analysis

To clarify the moderation pattern, *a simple slope analysis was conducted* at three levels of social support. At low levels, the effect of *financial stress* on *psychological distress* was strongest; at medium levels, the effect remained significant but decreased; and at high levels, the effect became weaker. These findings confirm the role of social support as a *buffering factor* in the relationship between financial stress and psychological distress.

Hypothesis Testing

Based on the results of the ANOVA test, the following values were obtained:

$F(3,308) = 109.76$; $p < 0.001$

This value indicates that the overall regression model is significant. Rounding of figures has been standardized between tables and narratives to maintain reporting consistency.

Coefficient of Determination

The coefficient of determination indicates that the model has an R^2 of 0.517. This means that 51.7% of the variation in *psychological distress* can be explained by *financial stress, social support,* and their interaction. Meanwhile, the remaining 48.3% is influenced by other variables outside the research model.

Categorization Test

Variable categorization was carried out based on the approach (Azwar, 2022) with a three-category division (low, medium, high). This approach is used to provide an overview of the distribution of variable levels in the population, although it is important to recognize that categorization is a simplification of continuous data.

The results showed that the majority of respondents were in the moderate category for all variables. However, for the social support variable, the proportion of respondents in the low category (28.84%) was higher than the high category (19.87%).

These findings indicate that some respondents experienced relatively low levels of social support, which may increase their vulnerability to the impact of *financial stress.* This is consistent with the results of the moderation analysis, which showed that social support acts as a *protective factor* that can mitigate the impact of financial stress on *psychological distress.* Therefore, the categorization results should not be interpreted as optimal conditions, but rather as an indication of vulnerable groups requiring further attention.

Buffering theory lies in testing the model in the context of manufacturing workers in Karawang, who are characterized by unique work and economic pressures. Compared with previous research, these findings not only confirm that social support acts as a protective factor but also indicate that *the buffering effect* becomes more contextual and relevant in work environments with high financial pressures and production demands. This aligns with the concept of *the buffering effect* proposed by S. Cohen & Wills (1985). which states that social support can mitigate the negative impact of stress on an individual's psychological well-being. In the Karawang manufacturing context, shift work systems, uncertainty about overtime income, and rising cost of living dynamics can reinforce perceptions of financial insecurity. This explains why *financial stress* has a stronger impact on *psychological distress* in this population. (Heo et al., 2020)

Furthermore, the moderation results indicate that the relationship between *financial stress* and *psychological distress* differs significantly at different levels of social support. Specifically, the slope of *the* relationship between *financial stress* and *psychological distress* is steeper in individuals with low social support, and becomes weaker in individuals with high social support. This finding suggests that social support plays a role in attenuating the negative effects *of financial stress.* This finding is consistent with previous research showing that social support can function as a buffer against the impact of stress (S. Cohen & Wills, 1985). This finding is also in line with the concept of social support proposed by (Zimet, Dahlem, Sara G. Zimet, et al., 1988) . However, these results are still based on interactions in the regression model, so further analysis such as *simple slope analysis* or *conditional effects* are still needed to provide a more detailed picture.

However, it should be noted that this study did not specifically distinguish between sources of social support, such as family, coworkers, or superiors. Therefore, the explanations regarding the forms of social support in this study should be understood as general interpretations, not as isolated empirical findings (Zimet, Dahlem, Sara G. Zimet, et al., 1988).

Practically, these findings have important implications for organizations, particularly manufacturing companies. Possible interventions include training for superiors to improve their ability to provide emotional and instrumental support to employees, establishing *peer support groups* to strengthen relationships among coworkers, providing confidential psychological counseling services, and financial literacy education programs to help employees manage their finances. These findings align with previous research showing that

financial stress contributes to increased *psychological distress.* (Richardson et al., 2017) In addition, the role of social support in reducing psychological stress has also been explained by (S. Cohen & Wills, 1985) who emphasized that social support can function as *a buffer* against stress.

However, this study has limitations, particularly the use of a *cross-sectional design* that does not allow for strong causal conclusions. Furthermore, the variables were measured using *self-report methods,* potentially introducing perception bias. Therefore, future research is recommended to use a longitudinal design, explore sources of social support more specifically, and test moderating mechanisms using more in-depth analyses such as *simple slope analysis.*

Overall, this study confirms that *financial stress* is an important risk factor for *psychological distress.* The findings by (Richardson et al., 2017) stated that financial stress increases the risk of psychological disorders. This finding is also supported by (Heo et al., 2020) . Meanwhile, social support can act as a protective mechanism that weakens the relationship between stress and psychological disorders, as explained in the concept of *the buffering effect* by (Rapoza et al., 2016) . These findings emphasize the importance of psychosocial approaches in maintaining workers' mental health, particularly in manufacturing environments with high work pressure.

Conclusion

This study confirms that *financial stress* is a significant factor associated with increased *psychological distress* in employees, while social support acts as a protective factor, helping to mitigate these negative impacts. These findings highlight the importance of social support in maintaining employee psychological well-being, particularly in work environments with economic pressures.

However, the results of this study need to be interpreted with caution due to the limitations of the *cross-sectional design*, the use of *non-probability sampling*, and *self-report data* which have the potential to contain bias and limit the generalizability of the findings.

Further research is recommended using longitudinal or experimental designs, expanding the sample size, and considering other relevant variables. Practically, organizations need to strengthen workplace social support as a strategy for managing the risk of *psychological distress*, without assuming a direct causal relationship.

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