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THE ROLE OF FINANCIAL LITERACY IN MEDIATING THE INFLUENCE OF VIRTUOUS LEADERSHIP ON THE WELFARE OF MSME EMPLOYEES

Novi Satria Jatmiko[1] *, Muhammad Zaky Nursandi[2] , Selfi Futrina[3] , Feby Safira[4] , Selowa Karenina Louth[5] , Ade Wahyudi Amir[6]

[1 2 3 4 5 6] Management Study Program, STIE Madani Balikpapan
e-mail: *novi.satria@gmail.com

ABSTRAK

Penelitian ini menganalisis pengaruh virtuous leadership terhadap literasi keuangan dan kesejahteraan karyawan UMKM serta menguji peran mediasi literasi keuangan. Penelitian menggunakan pendekatan kuantitatif dengan survei terhadap 120 karyawan UMKM di Kota Balikpapan yang dipilih melalui purposive sampling. Data dikumpulkan menggunakan kuesioner skala Likert dan dianalisis dengan Partial Least Squares–Structural Equation Modeling (PLS-SEM) melalui SmartPLS 4. Hasil pengujian menunjukkan bahwa virtuous leadership berpengaruh positif dan signifikan terhadap literasi keuangan (β = 0,393; p = 0,001) dan kesejahteraan karyawan (β = 0,467; p = 0,001). Literasi keuangan tidak berpengaruh signifikan terhadap kesejahteraan karyawan (β = −0,054; p = 0,809). Pengaruh tidak langsung melalui literasi keuangan juga tidak signifikan (β = −0,021; p = 0,825). Temuan ini menunjukkan bahwa kepemimpinan berbasis nilai moral memiliki hubungan langsung dengan kesejahteraan karyawan, sedangkan literasi keuangan lebih terkait dengan pengembangan kapasitas keuangan individu. Implikasi penelitian menekankan perlunya penguatan kepemimpinan etis dan edukasi literasi keuangan pada UMKM.

Kata kunci: *Kesejahteraan karyawan, Kepemimpinan berbudi luhur, Literasi keuangan, UMKM*

ABSTRACT

This study examines the effects of virtuous leadership on financial literacy and employee well-being and tests whether financial literacy mediates the relationship. Using a quantitative survey, data were collected from 120 MSME employees in Balikpapan selected through purposive sampling. Responses were measured with a Likert-scale questionnaire and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) in SmartPLS 4. Virtuous leadership positively and significantly influenced financial literacy (β = 0.393; p = 0.001) and employee well-being (β = 0.467; p = 0.001). Financial literacy did not significantly affect employee well-being (β = −0.054; p = 0.809), and its indirect mediating effect was not significant (β = −0.021; p = 0.825). These results suggest that moral-value-based leadership has a more direct relationship with employee well-being, whereas financial literacy contributes more clearly to individual financial capabilities. The study recommends strengthening ethical leadership practices and financial literacy development in MSMEs.

Keywords: *Employee well-being, Financial literacy, MSMEs, Virtuous leadership*

1. Introduction

Micro, small, and medium enterprises (MSMEs) contribute to employment, household income, and regional economic activity. The continuity of MSME businesses depends not only on capital and operations but also on the employees who carry out everyday organizational activities. As a result, employee well-being and the individual capacity to manage financial resources deserve attention alongside the performance of business owners. Human resource conditions may be particularly important in MSMEs because the organizational structure is relatively simple and employees tend to interact directly with their owners or leaders.

Financial literacy refers to the knowledge, skills, attitudes, and behaviours that enable individuals to plan, budget, save, manage debt, and make financial decisions. Prior research links financial literacy with financial management in MSMEs [8], financial well-being [6], and the capacity to cope with financial risk [20]. Financial literacy may therefore contribute to workers' economic resilience. Nevertheless,

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understanding personal financial choices is not necessarily sufficient to improve the wider psychological, social, and workplace dimensions of employee well-being.

The role of leaders is also central to employee experience. Virtuous leadership emphasizes honesty, fairness, integrity, responsibility, care, and moral example. Such behaviour can establish trust, facilitate learning, and create a supportive organizational climate. Prior studies associate virtuous or ethical leadership with employee trust and well-being [1], perceived organizational support [2], and positive employee emotions [4]. These mechanisms may be especially relevant in the relatively close working relationships found in MSMEs.

Two streams of literature thus provide the foundation for the present research. The first examines the relationship between financial literacy and financial well-being, while the second discusses the effects of virtuous leadership on employee attitudes and workplace well-being. The potential connection between those streams is less directly addressed: it remains important to examine whether virtuous leaders improve employee well-being by enhancing financial literacy, or whether their principal influence occurs through the immediate social and psychological work environment. This distinction is the empirical problem addressed here.

The study investigates employees of MSMEs in Balikpapan City. It asks whether virtuous leadership influences financial literacy; whether financial literacy influences employee well-being; whether virtuous leadership directly influences well-being; and whether financial literacy mediates that relationship. The contribution is to integrate leadership quality, employee financial capability, and employee well-being into one testable model. The results are intended to inform MSME leadership practices and workforce development programmes without assuming that improvements in financial literacy necessarily translate into changes in overall employee welfare.

2. Theoretical Foundation and Hypothesis Development

2.1. Virtuous leadership and employee development

Virtuous leadership is grounded in moral values and their consistent application in organizational decisions. A leader who acts with honesty, fairness, and responsibility can provide an example for employees, establish a climate of accountability, and strengthen trust. Hendriks et al. [1] discuss the relationship between virtuous leadership, employee well-being, and trust, while Amore et al. [11] examine the influence of leaders on ethical behaviour. Ethical conduct may consequently be relevant not only to workplace relationships but also to the habits through which employees acquire and apply practical knowledge.

The leader–employee relationship in MSMEs is often immediate and personal. Transparent communication and responsible resource management can supply opportunities for employees to observe financial decision-making, ask questions, and learn practical financial behaviour. Financial literacy is not identical to leadership, yet a supportive leadership environment can plausibly facilitate its development. On this basis, the first hypothesis is proposed:

H1: Virtuous leadership positively influences MSME employees' financial literacy.

2.2. Financial literacy and employee well-being

Financial literacy includes the capacity to distinguish needs from wants, prepare budgets, manage savings and debt, plan for emergencies, compare alternatives, and evaluate long-term financial choices. Studies of financial literacy have linked these capabilities with financial management [5], financial resilience [7], and financial well-being [6]. Zaimovic et al. [20] also describe financial literacy as a multidimensional concept involving determinants and behaviours. These findings support the expectation that financial knowledge can help workers reduce financial pressure and manage available income more effectively.

Employee well-being, however, extends beyond personal finances to job satisfaction, psychological security, physical and mental working conditions, recognition, and the perceived quality of working life.

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Financial literacy may affect these outcomes indirectly by helping employees plan and manage financial risks, but its effect can be constrained by income, workplace conditions, and organizational support. Despite this potential qualification, the theory supports a positive expected relationship:

H2: Financial literacy positively influences MSME employees' well-being.

2.3. Virtuous leadership and employee well-being

Leadership grounded in integrity, empathy, and fairness may improve employee well-being by creating a more supportive and predictable work climate. Employees who experience respectful treatment and organizational support can feel safer when communicating concerns, initiating improvements, or participating in decisions. Cheng et al. [2] associate ethical leadership with employee well-being through perceived organizational support; Sarwar and Ishaq [3] connect ethical leadership with engagement and well-being; and Saleem and Bhutta [4] focus on emotional management. Studies of psychological safety and work relationships likewise support attention to these workplace mechanisms [9], [16].

In MSMEs, direct interaction with owners and managers may intensify the importance of leaders' behaviour. The presence of clear direction, fair treatment, and interpersonal trust can affect the daily quality of work independently of the employee's financial knowledge. Therefore, the third hypothesis is formulated:

H3: Virtuous leadership positively influences MSME employees' well-being.

2.4. Mediating role of financial literacy

Financial literacy is proposed as a mechanism through which virtuous leadership may influence employee welfare. Leaders who model responsible decisions and support learning may increase employees' financial capability. Those capabilities may in turn improve budgeting, saving behaviour, and the ability to handle financial uncertainty. Related research considers the links among ethical conduct, financial decisions, and individual well-being [10], [13], [15]. If both pathways are present, the effect of virtuous leadership on employee well-being could partly pass through financial literacy.

The mediating hypothesis differs from the direct-effect hypotheses: it requires evidence that the indirect path from leadership to financial literacy and then to employee well-being is statistically significant. The fourth hypothesis is therefore:

H4: Financial literacy mediates the effect of virtuous leadership on MSME employees' well-being.

The conceptual model places virtuous leadership (X) as the predictor, financial literacy (M) as the mediator, and employee well-being (Y) as the outcome. Paths X→M, M→Y, X→Y and X→M→Y correspond to H1–H4. This notation is used consistently in the discussion below; the statistical output in the source document labels the financial-literacy construct Z.

3. Research Method

3.1. Research design, population and sample

The study used a quantitative explanatory survey of MSME employees in Balikpapan City. Purposive sampling was applied to employees who had worked for at least six months, interacted directly with an owner or leader, and were willing to complete the questionnaire. A total of 120 respondents participated. The sample size was determined in the original study with reference to 24 initial indicators and a minimum of five respondents per indicator (24 × 5 = 120). This sampling approach supports testing of the specified relationships in the surveyed group, although conclusions should not be interpreted as estimates for all MSME employees in Indonesia.

Primary data were obtained through a structured questionnaire distributed using Google Forms. Each statement employed a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Secondary material, including journal articles, research publications, and MSME documents, was

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used to build the theoretical framework and interpret the findings. The unit of analysis was the individual employee, rather than the firm.

3.2. Operational definitions

Three constructs were measured using eight initial indicators each. Virtuous leadership (X) covered honesty, fair treatment, concern for employees, integrity, moral example, consistency of actions and speech, ethical responsibility, and concern for long-term employee interests. Financial literacy (M; coded Z in the software results) addressed needs and wants, budgeting, savings, emergency funds, debt management, comparison of financial alternatives, long-term planning, and confidence in financial decision-making. Employee well-being (Y) covered job satisfaction, work conditions supporting physical and mental health, psychological safety, meaning of work, recognition, career optimism, and overall job happiness. These measures follow the operational definitions provided in the source study.

3.3. Data analysis

Data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The measurement model was evaluated through indicator outer loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), discriminant validity and variance inflation factors (VIF). The original methodological criteria were an outer loading of at least 0.70, AVE of at least 0.50, and reliability coefficients above 0.70. These procedures are consistent with the reporting topics covered by Cheung et al. [18] and the PLS-SEM guidance of Becker et al. [17].

After checking the measurement model, the structural model was examined using R-square, f-square and model fit indices. Significance of direct and indirect relationships was assessed by bootstrapping, using a two-sided benchmark of $t > 1.96$ and $p < 0.05$ as stated in the source. Mediation was assessed through the significance of the specific indirect effect rather than inferred solely from significant direct paths [19]. All reported values in the following section were retained from the original statistical tables; no new model estimation was undertaken in the editorial adaptation.

4. Results and Discussion

4.1. Respondent characteristics

The survey involved 120 employees, comprising 57 men (47.5%) and 63 women (52.5%). Most respondents had worked for more than three years (62 employees; 51.7%), followed by one to three years (42 employees; 35.0%) and six months to less than one year (16 employees; 13.3%). Operational positions accounted for the largest group (80 respondents), followed by administration (23), other functions (10), cashier (4), and delivery (3). Table 1 summarizes this composition without reproducing separate tables for every demographic characteristic.

Table 1. Respondent characteristics

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	57	47.5
	Female	63	52.5
Tenure	6 months to <1 year	16	13.3
	1–3 years	42	35.0
	>3 years	62	51.7
Position	Operational	80	67
	Administration	23	19
	Cashier	4	3
	Delivery	3	3
	Other	10	8

Source: Original manuscript, research data processed in 2026 (n = 120). Percentages are reported as in the source.

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4.2. Evaluation of the measurement model

The initial outer-loading results included indicators below the threshold used in the study. As reported in the source, the indicators eliminated during model modification were X1.5, Y1.2, Y1.3, Y1.4, Y1.5, Y1.6, Z1.2, and Z1.5. The retained model consequently comprised seven leadership indicators, three employee well-being indicators, and six financial-literacy indicators. In the revised measurement model, reported loadings ranged from 0.702 to 0.808 for virtuous leadership (X), from 0.715 to 0.904 for well-being (Y), and from 0.722 to 0.782 for financial literacy (Z).

The reliability results in Table 2 indicate Cronbach's alpha values of 0.882, 0.764 and 0.845 for X, Y and Z, respectively. Composite reliability (rho_c) was 0.908, 0.866 and 0.885, while AVE values were 0.587, 0.684 and 0.563. On the criteria specified by the authors, the retained constructs meet internal-consistency and convergent-validity thresholds. These statistics describe the model after the reported elimination procedure, not the original 24-indicator model.

Table 2. Reliability and convergent validity after modification

Construct	Retained items	Loading range	α	CR (ρc)	AVE
Virtuous leadership (X)	7	0.702–0.808	0.882	0.908	0.587
Well-being (Y)	3	0.715–0.904	0.764	0.866	0.684
Financial literacy (Z/M)	6	0.722–0.782	0.845	0.885	0.563

Source: SmartPLS output reported in the original manuscript, 2026.

Discriminant validity was examined using the Fornell–Larcker criterion, the heterotrait–monotrait ratio (HTMT) and cross-loadings. The source reports Fornell–Larcker diagonal values of 0.766 for X, 0.827 for Y, and 0.750 for Z, each higher than the corresponding interconstruct correlations (X–Y = 0.446; X–Z = 0.393; Y–Z = 0.130). HTMT values were 0.536, 0.437, and 0.240 for the same construct pairs. The cross-loading results were interpreted by the authors as supporting discriminant validity. The highest reported indicator VIF was 2.482 and the lowest 1.377, indicating no substantial collinearity under the applied criteria.

4.3. Structural model and hypothesis testing

The source reports R-square = 0.202 (adjusted 0.188) for employee well-being (Y) and R-square = 0.154 (adjusted 0.147) for financial literacy (Z). Thus, the model explains 20.2% of the variation in well-being and 15.4% of the variation in financial literacy within the estimation sample. The reported f-square effects were 0.231 for X→Y, 0.182 for X→Z, and 0.003 for Z→Y. Fit statistics were SRMR = 0.096, d_ULS = 1.251, d_G = 0.460, chi-square = 298.315 and NFI = 0.708. These fit values are reported for transparency, without claiming that each establishes adequate fit under every recommended standard.

Table 3 presents the path coefficients and bootstrapping test results. Virtuous leadership has a statistically significant positive association with employee well-being (β = 0.467; t = 3.292; p = 0.001) and financial literacy (β = 0.393; t = 3.238; p = 0.001). In contrast, the path from financial literacy to employee well-being is negative and not statistically significant (β = −0.054; t = 0.241; p = 0.809). The specific indirect path from leadership to well-being through financial literacy is also not statistically significant (β = −0.021; t = 0.221; p = 0.825).

Table 3. Direct and indirect hypothesis tests

Path / hypothesis	β	STDEV	t-statistic	p-value	Decision
X → Z/M (H1)	0.393	0.121	3.238	0.001	Supported
Z/M → Y (H2)	−0.054	0.224	0.241	0.809	Not supported
X → Y (H3)	0.467	0.142	3.292	0.001	Supported
X → Z/M → Y (H4)	−0.021	0.096	0.221	0.825	Not supported

Source: SmartPLS bootstrapping output in the original manuscript, 2026. X = virtuous leadership; Z/M = financial literacy; Y = employee well-being.

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The comparison of direct and indirect effects is important. Although the leadership-to-literacy path is significant, the literacy-to-well-being path is not. Therefore, the existence of a significant first step does not by itself establish mediation. Hypothesis H4 is not supported based on the specific indirect effect. The original manuscript also reports a total indirect effect with the same estimate and p-value; for concision it is not presented as a duplicate table. Model effects are interpreted as associations estimated in a cross-sectional survey, not definitive causal effects.

4.4. Influence of virtuous leadership on financial literacy

Support for H1 suggests that employees who perceive greater honesty, fairness, integrity, caring and responsibility in their leaders also report greater financial literacy. The substantive explanation advanced in the original manuscript is that leaders can provide examples of responsible financial behaviour and encourage an open environment for learning. This interpretation is consistent with literature on ethical leadership and financial decision-making [10], [11], and with studies emphasizing the importance of financial-management capability within MSMEs [8], [12].

For practice, the relationship highlights the potential value of leadership behaviours that facilitate discussion of budgeting, disciplined financial choices, and responsible decisions. It does not prove that changing leadership practices alone would cause a measurable change in financial literacy, because the evidence is based on one survey and a specified structural model. Nevertheless, the significant path offers empirical support for including leadership considerations in programmes that aim to strengthen the financial capabilities of MSME employees.

4.5. Influence of financial literacy on employee well-being

H2 was not supported. The coefficient for financial literacy was slightly negative and statistically insignificant, implying that the survey did not establish an independent positive association between financial literacy and employee well-being after accounting for virtuous leadership. This finding differs from research that reports links between financial literacy, financial behaviour and financial well-being [6], [7], [15]. The discrepancy is not necessarily contradictory because the present outcome covers broader workplace well-being rather than financial condition alone.

The original discussion suggests that income security, working conditions, recognition, social relationships and organizational support may have a more immediate influence on the well-being of employees in MSMEs. That possibility is compatible with literature on financial stress [21] and workplace conditions [16]. However, those additional determinants were not directly included in the tested model, so they should be treated as explanations for future research rather than established findings of the current data.

4.6. Influence of virtuous leadership on employee well-being

H3 was supported by a positive and significant direct path. The result indicates that leader behaviour based on justice, integrity and care is associated with better employee well-being in the surveyed MSMEs. Virtuous leaders may foster psychological safety, trust, recognition and social support, which can influence how employees experience their jobs. The findings align with evidence concerning virtuous leadership and trust [1], perceived organizational support [2], employee engagement [3] and the emotional pathways of ethical leadership [4].

In small workplaces, leadership practices can shape employees' daily experiences through immediate communication, treatment of staff and responses to concerns. These mechanisms provide a plausible rationale for the stronger direct relationship observed here compared with the path through financial literacy. From a managerial perspective, maintaining fairness, openness and consistent ethical practices may therefore be an important component of employee-well-being initiatives, alongside efforts to develop technical and financial competencies.

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4.7. Mediating role of financial literacy

H4 was not supported: the indirect effect through financial literacy was −0.021, with t = 0.221 and p = 0.825. The result indicates that the data do not support a mediation mechanism from virtuous leadership to employee well-being through financial literacy. Even though leadership is related to financial literacy, the second link in the proposed mechanism does not yield evidence of an associated change in well-being. Accordingly, the observed relationship between virtuous leadership and employee well-being is more prominent on the direct path than on the tested indirect path.

This interpretation should be bounded by the study design. The cross-sectional sample from one city, non-probability sampling and reliance on self-reported indicators limit broader generalization and causal interpretation. Moreover, the original manuscript reports elimination of eight indicators to reach the final measurement model, a procedure that may narrow the original conceptual coverage of some constructs. Further studies could examine alternative mediators such as organizational support, perceived fairness or psychological safety and distinguish financial well-being from general workplace well-being. Mediation interpretation should also consider uncertainty in indirect effects [19].

5. Conclusion

The study provides evidence of two significant positive relationships: virtuous leadership with financial literacy and virtuous leadership with employee well-being among the 120 surveyed MSME employees in Balikpapan. Financial literacy did not have a statistically significant direct effect on employee well-being. The indirect effect of virtuous leadership through financial literacy was also not significant. Thus, the tested model supports H1 and H3 but does not support H2 and H4. It suggests that virtuous leadership has a clearer direct association with employee well-being than the indirect route operating through financial literacy.

MSME owners and managers are encouraged to establish leadership practices grounded in honesty, fairness, integrity and care, while maintaining employee financial-education efforts as a distinct human resource development objective. Government and MSME-support institutions can incorporate ethical leadership and financial-literacy training in workforce programmes. Because the study is restricted to one city and uses a cross-sectional purposive sample, future research should investigate additional determinants of welfare, collect data from other regions, and examine mechanisms such as psychological safety, organizational support, compensation and job satisfaction. These recommendations preserve the original article’s implications without treating untested factors as confirmed causes.

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