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RESEARCH ARTICLE

Mindfulness, Gratitude, and Mental Well-Being Among Working University Students in Indonesia: A Cross-Sectional Study

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Abstract. University students who work while pursuing their degrees face competing academic and employment demands that may affect their mental well-being. This study aimed to examine the predictive relationships of mindfulness and gratitude with mental well-being among working university students. A quantitative, cross-sectional correlational design was employed. A total of 332 university students working at least 20 hours per week were recruited through purposive sampling. Data were collected online using the Five Facet Mindfulness Questionnaire, Gratitude Questionnaire–6, and Warwick–Edinburgh Mental Well-Being Scale and analyzed using multiple linear regression. Most participants exhibited very high levels of gratitude, while moderate mental well-being was the most frequently observed category. The overall regression model was not statistically significant, $F(2, 329) = 0.779$, $p = .460$, $R^2 = .005$, adjusted $R^2 = -.001$. Neither mindfulness ($\beta = -.013$, $p = .820$) nor gratitude ($\beta = .070$, $p = .213$) was a statistically significant predictor. Together, both variables explained only 0.5% of the variance in mental well-being. These findings indicate limited explanatory power within the study sample rather than demonstrating the absence of associations in the broader population. Future research should evaluate measurement quality and incorporate contextual factors, including work–study conflict, work intensity, financial strain, and social support, into more comprehensive predictive models.

Keywords: mindfulness; gratitude; mental well-being; working university students; work–study conflict.

INTRODUCTION

Working university students represent a distinct group in higher education who simultaneously fulfill academic and employment responsibilities. Their decisions to work while pursuing higher education may be motivated by financial needs, the desire to gain professional experience, skill development, or the pursuit of financial independence. Although employment can provide opportunities for competency development and career preparation, managing these dual responsibilities requires the continuous allocation of time, energy, and psychological resources. Working students must attend classes, complete academic assignments, fulfill employment obligations, and maintain their personal and social lives. These circumstances place working university students in a different position from those who focus exclusively on academic activities. Fernandha and Grasiaswaty (2021) highlighted the relevance of role conflict to the academic well-being of working students, while Samaratunga et al. (2025) identified various stressors arising from difficulties in balancing employment and academic responsibilities. These findings underscore the importance of understanding working students' experiences from the perspectives of competing role demands and psychological well-being.

The complexity of working students' experiences can be explained through the concept of role conflict, which occurs when the demands of two or more roles interfere with individuals' ability to fulfill their responsibilities. Greenhaus and Beutell (1985) identified three forms of interrole conflict: time-based conflict, which arises from competing time demands; strain-based conflict, which occurs when pressures associated with one role interfere with performance in another; and behavior-based conflict, which results from incompatible behavioral expectations across roles. Among working university students, time-based conflict may arise when employment schedules interfere with class attendance, whereas strain-based conflict may occur when work-related fatigue reduces concentration and the ability to complete academic assignments. Wilding et al. (2026) demonstrated that employment conditions, including working hours, job control, clarity of instructions, and job security, are associated with the mental health of working university students in England. These findings suggest that working students' well-being is associated not only with individual characteristics but also with employment conditions and the environmental demands they encounter.

The pressures associated with dual responsibilities can be further understood through Conservation of Resources (COR) theory, developed by Hobfoll (1989). This theory proposes that individuals strive to acquire, maintain, and

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protect resources they consider valuable, including time, energy, health, social relationships, and psychological capacities. Stress may arise when these resources are threatened or lost. Among working university students, competition between academic and employment demands may reduce opportunities for rest and psychological resource recovery. This perspective aligns with Job Demands–Resources (JD-R) theory, which emphasizes the interaction between environmental demands and available resources in understanding individual well-being (Bakker & Demerouti, 2017). Accordingly, the pressures experienced by working students may arise not merely from the number of activities they undertake but also from an imbalance between the demands they face and the resources available to manage them.

One important indicator of individuals' ability to adapt to life's demands is mental well-being. This concept extends beyond the absence of psychological disorders to encompass positive emotions, the ability to cope with challenges, meaningful interpersonal relationships, and optimal psychological functioning. Tennant et al. (2007) explained that mental well-being integrates hedonic and eudaimonic perspectives. The hedonic perspective emphasizes positive emotional experiences, whereas the eudaimonic perspective focuses on psychological functioning and the realization of individual potential. These two perspectives provided the conceptual foundation for the development of the Warwick–Edinburgh Mental Well-Being Scale (WEMWBS). In the context of working university students, mental well-being is particularly important because it is associated with their capacity to maintain academic engagement, fulfill professional responsibilities, and adaptively manage life stressors. Therefore, identifying psychological resources associated with mental well-being is essential for understanding how students adapt to the demands of simultaneous academic and employment responsibilities.

The relevance of the present study is further supported by a preliminary exploratory survey conducted between February 24 and March 28, 2026, involving 30 working university students in Indonesia. The findings indicated that 30% of respondents rarely felt relaxed, 33.3% experienced difficulty maintaining their energy levels, 43.3% reported being able to think clearly under pressure only occasionally, and 26.7% rarely felt optimistic about the future. These preliminary findings provide an initial indication of psychological experiences potentially associated with mental well-being among working students. However, because the survey was exploratory and involved a limited number of respondents, its findings cannot be generalized to estimate the prevalence of mental health conditions among working university students in Indonesia. Instead, the survey provides contextual justification for investigating psychological resources that may be associated with mental well-being, particularly mindfulness and gratitude.

Mindfulness is a psychological resource that has been extensively examined in relation to mental well-being. Bishop et al. (2004) conceptualized mindfulness as comprising two primary components: the self-regulation of attention toward present-moment experiences and an orientation characterized by acceptance of those experiences. Baer et al. (2006) developed a multidimensional approach encompassing five facets of mindfulness: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. These facets represent individuals' capacities to observe experiences, identify internal states, engage in activities consciously, and respond to thoughts and emotions without excessive judgment or reactivity. Baer et al. (2008) demonstrated that the associations between specific mindfulness facets and psychological well-being may vary according to individual characteristics and experiences. Therefore, mindfulness should be understood as a multidimensional construct rather than a single psychological capacity that uniformly produces beneficial outcomes.

Theoretically, mindfulness is expected to be associated with mental well-being through mechanisms involving attentional regulation, acceptance, emotion regulation, and decentering. Attentional regulation enables individuals to direct awareness toward their ongoing activities, whereas acceptance may reduce the tendency to evaluate unpleasant experiences excessively. Decentering allows individuals to recognize thoughts and emotions as temporary mental events rather than definitive representations of themselves or their circumstances. For working university students, these mechanisms may facilitate the management of academic stress, decision-making, and emotional responses to employment demands. Nevertheless, mindfulness does not automatically eliminate external sources of stress. From the perspectives of COR and JD-R theories, mindfulness may be more appropriately conceptualized as a personal resource whose potential benefits depend on the intensity of environmental demands and the availability of contextual support.

Research on mindfulness should distinguish between dispositional mindfulness and mindfulness-based interventions. Dispositional mindfulness refers to an individual's general tendency to maintain awareness and acceptance in everyday life, whereas mindfulness-based interventions involve structured programs designed to develop these skills. The present study focuses on dispositional mindfulness, measured using the Five Facet Mindfulness Questionnaire (FFMQ). González-Martín et al. (2023), in a systematic review and meta-analysis, found that mindfulness-based interventions may improve several indicators of mental health among university students. Similarly, Schulte-Frankenfeld and Trautwein (2022) reported that an app-based mindfulness intervention reduced perceived stress and improved self-regulation among university students working at least 20 hours per week. Nevertheless, evidence regarding the effectiveness of mindfulness-based interventions cannot be directly interpreted as demonstrating that individual differences in dispositional mindfulness are consistently or significantly associated with mental well-being. These conceptual and methodological distinctions must be considered when developing the study hypotheses.

In addition to mindfulness, gratitude represents another psychological characteristic potentially associated with mental well-being. McCullough et al. (2002) defined dispositional gratitude as an individual's tendency to recognize and appreciate positive experiences and benefits received in life. Wood et al. (2010) explained that gratitude is associated with well-being through positive evaluations of experiences, interpersonal relationships, and psychological adaptation mechanisms. Among working university students, gratitude may help individuals appreciate opportunities for education, professional experience, and social support despite the challenges of fulfilling dual responsibilities. However, gratitude does not imply that individuals disregard difficulties or accept all unfavorable circumstances. Rather, this construct may be understood as a psychological disposition that facilitates positive evaluations of experiences without eliminating the objective stressors individuals encounter.

The relationship between gratitude and well-being can be explained through the broaden-and-build theory of positive emotions proposed by Fredrickson (2001). This theory suggests that positive emotions broaden individuals' thought–action repertoires and contribute to the development of enduring psychological and social resources. Gratitude may encourage attention to positive experiences, strengthen interpersonal relationships, and facilitate positive reappraisal, a process through which individuals reinterpret challenging experiences by recognizing their meaning or potential opportunities for personal growth. For working university students, these processes may help them view employment as an opportunity to develop professional skills and achieve greater independence. Nevertheless, the potential benefits of gratitude may not always be sufficient to counterbalance employment pressures, time constraints, and financial difficulties. Therefore, the relationship between gratitude and mental well-being should be understood by considering the interaction between psychological capacities and individuals' life circumstances.

As with mindfulness, dispositional gratitude should be distinguished from gratitude interventions. Dispositional gratitude reflects a relatively stable tendency to experience and express appreciation, whereas gratitude interventions involve structured activities intended to cultivate feelings of gratitude. Diniz et al. (2023), through a systematic review and meta-analysis, demonstrated the potential benefits of gratitude interventions for various psychological outcomes. Bohlmeijer et al. (2022) also found that changes in gratitude-related mood may mediate the effects of gratitude interventions on mental well-being. However, these findings do not directly establish the strength of the association between dispositional gratitude and mental well-being in observational surveys. Furthermore, Grimaldy and Haryanto (2020) demonstrated that adapting gratitude measures to the Indonesian context requires careful consideration of cultural characteristics. This highlights the importance of investigating gratitude in relation to the characteristics of specific populations and their sociocultural contexts.

Previous empirical research suggests that the relationships among mindfulness, gratitude, and psychological well-being may involve mechanisms more complex than simple direct associations. Ali et al. (2022) examined the relationships among these constructs in young adults in Pakistan and highlighted the role of hopefulness as a psychological mechanism underlying indirect associations with well-being. Similarly, Cho et al. (2026) investigated mindfulness, gratitude, and self-compassion among nursing students in South Korea as part of the psychological mechanisms linking life stress to stress responses and mental well-being. Together, these studies suggest that the contributions of positive psychological resources may involve more complex processes than direct relationships between individual characteristics and well-being. Nevertheless, differences in participant characteristics, cultural contexts, and analytical approaches limit the direct applicability of these findings to working university students in Indonesia.

Based on this synthesis, several research gaps can be identified. First, previous studies examining mindfulness and gratitude have frequently focused on general university student populations, young adults, or psychological interventions, whereas empirical understanding of the relationships between these dispositional constructs and mental well-being among working university students in Indonesia remains limited. Second, important conceptual differences exist between intervention studies and observational research examining individual psychological characteristics. Third, the extent to which mindfulness and gratitude jointly explain variations in mental well-being among students simultaneously managing academic and employment demands remains insufficiently understood. COR and JD-R theories provide a conceptual basis for understanding how personal resources may interact with environmental demands; however, the strength of these relationships cannot be assumed to be consistent across populations. Consequently, empirical investigation is needed to determine the relevance of these psychological resources to the mental well-being of working university students.

The present study aims to examine mindfulness and gratitude as statistical predictors of mental well-being among working university students in Indonesia, both individually and jointly. Its contribution lies in evaluating two dispositional psychological resources within a population experiencing competing academic and employment demands and determining the proportion of variance in mental well-being explained by the proposed model. Based on the theoretical framework and previous empirical evidence, three hypotheses were formulated. The first hypothesis (H1) proposes that mindfulness is a significant positive predictor of mental well-being. The second hypothesis (H2) proposes that gratitude is a significant positive predictor of mental well-being. The third hypothesis (H3) proposes that mindfulness and gratitude jointly predict mental well-being significantly among working university students. By testing these hypotheses, the study seeks to advance understanding of the relevance of internal psychological resources in the context of work–study demands and provide a foundation for future research integrating individual and structural factors.

METHODS

Research Design

This study employed a quantitative approach using a cross-sectional, predictive correlational design to examine the relationships between mindfulness, gratitude, and mental well-being among working university students. Mindfulness and gratitude were specified as predictor variables, whereas mental well-being was designated as the criterion variable. All variables were measured during a single data collection period using self-report psychological questionnaires.

Participants

The target population comprised actively enrolled university students in Indonesia who simultaneously pursued academic studies and worked in either the formal or informal employment sector. Participants were selected using purposive sampling, a nonprobability sampling technique based on predefined characteristics relevant to the research objectives. The inclusion criteria required participants to be actively enrolled university students who had completed at least one year of university education, were currently employed while pursuing their studies, and worked a minimum of 20 hours per week. This employment threshold was established as an operational criterion for identifying students with substantial work commitments alongside their academic responsibilities. The use of a minimum threshold of 20 working hours per week was consistent with Schulte-Frankenfeld and Trautwein (2022),

who investigated university students working at least 20 hours per week.

A total of 332 students who met the inclusion criteria were included in the analysis. Participants were between 19 and 24 years old and comprised 99 men (29.8%) and 233 women (70.2%). Regarding enrollment cohort, most participants entered university in 2022 (n = 243, 73.2%), followed by those enrolled in 2023 (n = 63, 19.0%) and 2024 (n = 26, 7.8%). In terms of employment sector, 181 participants (54.5%) worked in the formal sector, while 151 (45.5%) were employed in the informal sector. Regarding weekly working hours, 225 participants (67.8%) reported working exactly 20 hours per week, whereas 107 (32.2%) worked more than 20 hours per week. Participants were recruited through online research announcements distributed via social media platforms. Their demographic characteristics are presented in Table 1.

Table 1. Demographic Characteristics of the Participants (N = 332)

Characteristics/ Category	Frequency (n)	Percentage (%)
Gender		
Male	99	29.8
Female	233	70.2
Age		
19 years	20	6.0
20 years	23	6.9
21 years	88	26.5
22 years	124	37.4
23 years	59	17.8
24 years	18	5.4
Enrollment cohort		
2024	26	7.8
2023	63	19.0
2022	243	73.2
Employment sector		
Formal	181	54.5
Informal	151	45.5
Weekly working hours		
20 hours	225	67.8
More than 20 hours	107	32.2

Note. N = total number of participants; n = frequency. Percentages are based on the total sample (N = 332) and may not sum to exactly 100% because of rounding.

Research Instruments

Data were collected using three psychological instruments designed to assess mindfulness, gratitude, and mental well-being. All instruments were administered through online questionnaires that participants completed independently. Instrument selection was based on conceptual alignment with the psychological constructs under investigation and the availability of theoretical foundations and psychometric evidence from previous research. Mindfulness was operationalized as a dispositional tendency to maintain awareness and acceptance of experiences, gratitude as a tendency to appreciate positive experiences, and mental well-being as a state of positive psychological functioning encompassing emotional experiences and adaptive psychological functioning.

Mindfulness

Mindfulness was assessed using the Five Facet Mindfulness Questionnaire (FFMQ), originally developed by Baer et al. (2006), with reference to the Indonesian-language adaptation by Meindy et al. (2022). The instrument measures five facets of mindfulness: observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience. The observing facet reflects the ability to attend to internal and external experiences, whereas describing refers to the capacity to identify and articulate experiences through language. Acting with awareness represents the ability to engage consciously in ongoing activities, while nonjudging involves accepting experiences without excessive negative evaluation. Nonreactivity reflects the capacity to allow thoughts and emotions to arise without responding to them automatically.

The original FFMQ consists of 39 items rated on a five-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). The questionnaire includes negatively worded items that require reverse scoring before calculating the total score. Items assessing observing address experiences such as attending to bodily sensations during activities, whereas items assessing acting with awareness address tendencies to perform activities without paying full attention. Higher scores, following appropriate item coding, indicate higher levels of mindfulness. Meindy et al. (2022) provided evidence of content validity, internal structure, and internal consistency for the Indonesian adaptation of the FFMQ, supporting its relevance for assessing mindfulness among Indonesian adults. In the present study, mindfulness scores were used as a predictor variable in the multiple linear regression model.

Gratitude

Gratitude was assessed using an instrument developed based on the Gratitude Questionnaire–6 (GQ-6) introduced by McCullough et al. (2002), with reference to its Indonesian adaptation by Grimaldy and Haryanto (2020). Conceptually, the GQ-6 was designed to assess dispositional gratitude, defined as an individual's tendency to recognize, appreciate, and respond positively to benefits received in life. Dispositional gratitude encompasses the intensity and frequency of grateful experiences, the breadth of circumstances for which individuals feel grateful, and the diversity of sources that elicit gratitude. This construct differs from gratitude interventions because it reflects an individual psychological characteristic rather than changes resulting from structured exercises or intervention programs.

The original GQ-6 consists of six items with seven response options, whereas the adaptation conducted by Grimaldy and Haryanto (2020) resulted in an 11-item Indonesian version comprising two gratitude factors. These factors represent appreciation of relatively enduring aspects of life experiences and appreciation of individuals who have made positive contributions to one's life. In the present study, gratitude was treated as a predictor variable representing participants' dispositional tendency toward gratitude.

Mental Well-Being

Mental well-being was measured using the Warwick–Edinburgh Mental Well-Being Scale (WEMWBS), developed by Tennant et al. (2007). This instrument was designed to assess positive aspects of mental health by integrating positive emotional experiences and adaptive psychological functioning. Conceptually, the WEMWBS encompasses hedonic well-being, which emphasizes positive affective

experiences, and eudaimonic well-being, which focuses on individuals' capacity for optimal psychological functioning. However, these perspectives constitute the conceptual foundations of the instrument and do not necessarily represent two psychometrically distinct subscales.

The full WEMWBS consists of 14 items with five response categories assessing the frequency of psychological experiences over the preceding two weeks. Each item is scored from 1 to 5, yielding a total score ranging from 14 to 70, with higher scores indicating greater mental well-being. The items address experiences such as optimism about the future, clear thinking, feelings of relaxation, and the ability to cope with difficulties. Total scores are calculated by summing responses across all items according to the instrument's scoring guidelines. In this study, mental well-being served as the criterion variable in the multiple linear regression analysis.

Instrument Validity and Reliability

Before the main data collection, the research instruments underwent an expert judgment process involving individuals with expertise in psychology. This process was conducted to evaluate the alignment of questionnaire items with the operational definitions of the constructs, clarity of wording, linguistic appropriateness, and item relevance to working university students.

Following the expert review, pilot testing was conducted with 30 working university students who were not included in the main study sample. The pilot test was intended to assess item comprehensibility, the appropriateness of response options, clarity of questionnaire instructions, and consistency of responses across items. The pilot-test findings could also be used to evaluate item characteristics and identify potential revisions before the instruments were administered in the main data collection.

Data Collection Procedures and Ethical Considerations

Ethical approval for this study was obtained from the Research Ethics Committee of the Faculty of Psychology, Universitas Muhammadiyah Malang (approval number: E.6.m/583/KE-FPsi-UMM/IV/2026). This approval was obtained to ensure compliance with ethical requirements for research involving human participants. The main data collection was conducted from April 26 to May 14, 2026, using an online questionnaire administered through Google Forms. Recruitment information was disseminated via Instagram, TikTok, WhatsApp, and Telegram using a research announcement poster containing general information about the study and a link to the questionnaire.

Before completing the questionnaire, prospective participants were required to review an informed consent statement describing the study objectives, participation procedures, and participants' rights and responsibilities. Informed consent was obtained electronically by asking participants to select the consent option provided in the online form. After providing consent, participants completed questions regarding their demographic characteristics, mindfulness, gratitude, and mental well-being. Participants completed the questionnaire independently using their own electronic devices.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 24 for Windows. The analysis was conducted in several stages, including data quality screening, descriptive statistical analysis, assessment of regression assumptions, and hypothesis testing using multiple linear regression. These procedures were designed to evaluate the predictive relationships of mindfulness and gratitude with mental well-being.

Descriptive statistics were used to summarize participant characteristics and the distribution of scores for each study variable. Categorical characteristics, including gender, enrollment cohort, employment sector, and weekly working-hour categories, were presented as frequencies and percentages. Meanwhile, mindfulness, gratitude, and mental well-being scores were summarized using minimum and maximum values, means, and standard deviations.

Before hypothesis testing, regression assumptions were assessed, including residual normality, linearity, homoscedasticity, and multicollinearity. Residual normality was examined using the Kolmogorov–Smirnov test, whereas the linearity of the relationships between mindfulness and mental well-being and between gratitude and mental well-being was evaluated using the Deviation from Linearity test. A significance value greater than .05 was interpreted as indicating no statistically significant deviation from the assumptions of normality and linearity. Homoscedasticity was assessed through visual inspection of a scatterplot of standardized predicted values against studentized residuals, with the absence of a systematic residual pattern interpreted as an indication of no apparent heteroscedasticity. Multicollinearity was evaluated using tolerance values and variance inflation factors (VIFs), with tolerance values greater than 0.10 and VIF values below 10.00 indicating no serious multicollinearity concerns. These diagnostic procedures were conducted to evaluate the appropriateness of the regression model before interpreting the hypothesis-testing results.

Hypotheses were tested using multiple linear regression, with mindfulness and gratitude specified as predictor variables and mental well-being as the criterion variable. The regression model was expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

where Y represents mental well-being, X_1 represents mindfulness, X_2 represents gratitude, β_0 denotes the intercept, β_1 and β_2 represent the regression coefficients, and ε denotes the residual error term.

The overall statistical significance of the regression model was evaluated using the F test, whereas the statistical contribution of each predictor was assessed using t tests of the regression coefficients. The proportion of variance in mental well-being explained by the model was evaluated using the coefficient of determination (R^2) and adjusted R^2. Regression coefficients were interpreted by considering the direction and magnitude of the estimated associations and the uncertainty surrounding the estimates.

The statistical significance level was set at α = .05. Regression results were reported using unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t statistics, F statistics, degrees of freedom, and exact p values. Where available, 95% confidence intervals for regression coefficients were to be included to provide additional information regarding the precision of the estimates. Three hypotheses were evaluated: (H1) mindfulness is a significant positive predictor of mental well-being; (H2) gratitude is a significant positive predictor of mental well-being; and (H3) mindfulness and gratitude jointly predict mental well-being significantly among working university students.

RESULTS OF STUDY

Descriptive Statistics and Variable Categorization

Descriptive statistical analysis was conducted on 332 working university students to examine the distributions of mindfulness, gratitude, and mental well-being scores. As presented in Table 2, mindfulness had a mean score of 129.13 (SD = 19.774), with scores ranging from 84 to 190. Gratitude had a mean score of 38.21 (SD = 4.315), with scores ranging from 24 to 44, whereas mental well-being had a mean score of 47.13 (SD = 8.268), with scores ranging from 16 to 69. Based on the variable categorization, 179 participants (54.0%) were classified as having moderate levels of mindfulness, while 218 participants (65.7%) were categorized as having very high levels of gratitude. Meanwhile, 145 participants (43.7%) were classified as having moderate levels of mental well-being. These findings provide an overview of the distribution of participants' psychological characteristics before examining the relationships among the study variables using multiple linear regression analysis.

Regression Assumption Testing

Regression assumptions were examined before conducting multiple linear regression analysis to evaluate the appropriateness of the model for estimating the relationships between mindfulness, gratitude, and mental well-being among 332 working university students. The diagnostic procedures included assessments of residual normality, linearity, homoscedasticity, and multicollinearity. A summary of the results is presented in Table 3.

Table 2. Descriptive Statistics and Categorization of Study Variables

Variable	N	Min.	Max.	M	SD	Category	n (%)
Mindfulness	332	84	190	129.13	19.774	Moderate	179 (54.0%)
Gratitude	332	24	44	38.21	4.315	Very high	218 (65.7%)
Mental well-being	332	16	69	47.13	8.268	Moderate	145 (43.7%)

Note. N = total number of participants; Min. = minimum score; Max. = maximum score; M = mean; SD = standard deviation; n (%) = number and percentage of participants in the reported category. Categories were determined according to the variable classification procedures employed in this study.

Table 3. Summary of Multiple Linear Regression Assumption Tests

Assumption	Test/Variable	Statistic	p	Interpretation
Residual normality	Kolmogorov–Smirnov	Z = 0.459	.984	No statistically significant deviation from normality
Linearity	Mindfulness–mental well-being	F(77, 253) = 1.302	.067	No statistically significant deviation from linearity
	Gratitude–mental well-being	F(18, 312) = 1.157	.297	No statistically significant deviation from linearity
Homoscedasticity	Residual scatterplot	No clear systematic pattern observed	—	No pronounced visual indication of heteroscedasticity
Multicollinearity	Mindfulness	Tolerance = 0.972; VIF = 1.029	—	No indication of problematic multicollinearity
	Gratitude	Tolerance = 0.972; VIF = 1.029	—	No indication of problematic multicollinearity

Note. N = 332. Linearity was assessed using the Deviation from Linearity statistic. VIF = variance inflation factor. A dash (—) indicates that the diagnostic procedure did not produce a statistical significance value.

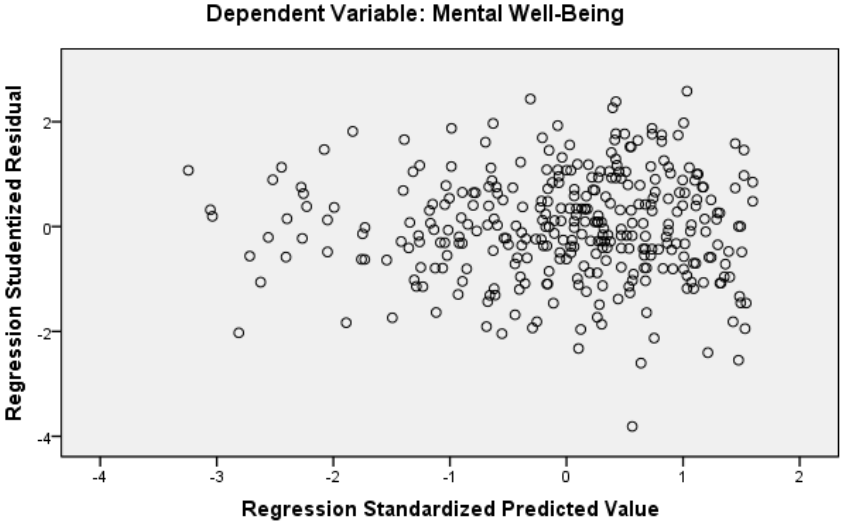


Figure 1. Scatterplot for the Assessment of Homoscedasticity

The Kolmogorov–Smirnov test of residual normality yielded a Z statistic of 0.459 with a significance value of p = .984. This result indicated no statistically significant deviation from a normal distribution in the regression residuals. The linearity assessment showed that the relationship between mindfulness and mental well-being had a Deviation from Linearity statistic of F(77, 253) = 1.302, p = .067. Similarly, the relationship between gratitude and mental well-being yielded F(18, 312) = 1.157, p = .297. Because both p values exceeded .05, no statistically significant deviations from linearity were detected for either relationship. These findings support the use of a linear model specification, although they do not, by themselves, establish the presence of statistically significant linear associations.

Visual inspection of the residual scatterplot indicated that the residuals were distributed on both sides of the zero line without forming a clearly identifiable systematic pattern. The distribution did not exhibit a consistent funnel-shaped pattern or systematic widening or narrowing, suggesting no pronounced visual evidence of heteroscedasticity in the regression model (see Figure 1). Furthermore, the multicollinearity assessment showed that both mindfulness and gratitude had tolerance values of 0.972 and VIF values of 1.029. These values met the predefined diagnostic criteria and indicated no substantial multicollinearity concerns between the two predictors.

Overall, the available diagnostic assessments did not identify serious violations of residual normality, linearity, homoscedasticity, or multicollinearity assumptions. Accordingly, based on the assumptions examined, the model was considered appropriate for proceeding with multiple linear regression analysis to evaluate the predictive relationships of mindfulness and gratitude with mental well-being among working university students.

Hypothesis Testing

Multiple linear regression analysis was conducted to examine mindfulness and gratitude as predictors of mental well-being among 332 working university students. As presented in Table 4, the overall regression model was not statistically significant, F(2, 329) = 0.779, p = .460, with a coefficient of determination of R^2 = .005 and an adjusted R^2 of −.001. The R^2 value indicated that mindfulness and gratitude jointly explained approximately 0.5% of the variance in mental well-being, while the remaining 99.5% of the variance was not explained by the model. The negative adjusted R^2 indicated that including the two predictors did not improve the model's explanatory performance after accounting for the number of predictors and sample size. These findings demonstrate that the regression model had very limited explanatory power and did not support the hypothesis that mindfulness and gratitude jointly significantly predicted mental well-being (H3).

The individual regression coefficient tests indicated that mindfulness had a very small negative coefficient that was not statistically significant (B = −0.005, SE = 0.023, β = −0.013, t = −0.228, p = .820). This finding indicated insufficient statistical evidence to support a positive predictive association between mindfulness and mental well-being after accounting for gratitude in the regression model. Therefore, the first hypothesis (H1) was not supported. Similarly, gratitude demonstrated a positive regression coefficient, but its association with mental well-being was not statistically significant (B = 0.133, SE = 0.107, β = 0.070, t = 1.248, p = .213). Accordingly, the second hypothesis (H2) was also not supported. Overall, the regression findings indicated that neither mindfulness nor gratitude demonstrated statistically significant predictive associations with mental well-being, whether examined individually or jointly, within the study sample.

Tabel 4. Hasil Analisis Regresi Linier Berganda terhadap Mental Well-Being

Predictor	B	SE	β	t	p
Intercept	42.723	4.673	—	9.143	< .001
Mindfulness	−0.005	0.023	−0.013	−0.228	.820
Gratitude	0.133	0.107	0.070	1.248	.213

Note. N = 332; R = .069; R^2 = .005; adjusted R^2 = −.001; F(2, 329) = 0.779; p = .460; standard error of the estimate = 8.273; Durbin–Watson statistic = 1.919. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; t = t statistic; p = statistical significance value. The dependent variable was mental well-being.

DISCUSSION

This study examined the predictive relationships of mindfulness and gratitude with mental well-being among 332 working university students. Multiple linear regression analysis indicated that the overall model was not statistically significant, F(2, 329) = 0.779, p = .460, with R^2 = .005 and adjusted R^2 = −.001. Together, the two predictors explained only 0.5% of the variance in mental well-being. Individually, neither mindfulness (β = −.013, p = .820) nor gratitude (β = .070, p = .213) was statistically significant; thus, none of the three hypotheses was supported. However, statistical nonsignificance does not establish the absence of an association. Interpretation should consider effect sizes, estimation uncertainty, and model appropriateness rather than relying exclusively on statistical significance thresholds (Amrhein et al., 2019; Wasserstein et al., 2019).

Descriptive statistics showed that mindfulness had a mean score of 129.13 (SD = 19.774), with 179 participants (54.0%) classified as having moderate mindfulness. Gratitude had a mean score of 38.21 (SD = 4.315), with 218 participants (65.7%) classified as having very high gratitude, whereas mental well-being had a mean score of 47.13 (SD = 8.268), with 145 participants (43.7%) falling within the moderate category. These categorical differences do not establish individual-level associations or causal relationships. Categorizing continuous scores may result in the loss of statistical information (MacCallum et al., 2002), while interpreting WEMWBS categories requires an established normative basis or clearly defined classification thresholds (Tennant et al., 2007). Therefore, conclusions regarding relationships among variables should primarily rely on analyses of continuous scores.

The nonsignificant association between mindfulness and mental well-being may be considered in relation to the multidimensional nature of mindfulness. The Five Facet Mindfulness Questionnaire (FFMQ) encompasses observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience (Baer et al., 2006). The relationships between these facets and

psychological functioning are not necessarily uniform (Baer et al., 2008). Johnson et al. (2024) reported differences in well-being across mindfulness profiles, while Jo and Pan (2025) demonstrated that acting with awareness and nonjudging may exhibit different patterns of association with mental health than observing. Using a total mindfulness score in the present study may have obscured facet-specific associations; however, this possibility was not directly examined. Facet-level analyses should therefore be preceded by assessments of the instrument's factor structure and reliability.

Distinguishing dispositional mindfulness from mindfulness-based interventions is also important. The present study assessed individuals' tendencies toward awareness and acceptance rather than the effects of mindfulness training. In an experimental study involving working university students, Schulte-Frankenfeld and Trautwein (2022) reported reductions in perceived stress and improvements in self-regulation and cognitive reappraisal following an app-based mindfulness intervention; however, improvements in life satisfaction were not statistically significant. These intervention findings cannot be directly generalized to the cross-sectional associations between dispositional mindfulness scores and mental well-being examined in the present study.

Gratitude demonstrated a small positive regression coefficient (B = 0.133, β = .070, p = .213). Theoretically, dispositional gratitude reflects an individual's tendency to appreciate positive aspects and benefits of life (McCullough et al., 2002) and is associated with positive affect, coping, and interpersonal relationships (Wood et al., 2010). Nevertheless, this association was not statistically supported in the present sample after accounting for mindfulness. Intervention research has suggested that changes in gratitude-related mood may contribute to improvements in well-being (Bohlmeijer et al., 2022), while a cross-cultural meta-analysis identified relatively small and heterogeneous average effects (Choi et al., 2025). However, evidence from gratitude interventions is not equivalent to the dispositional associations examined in this study.

A total of 65.7% of participants were classified as having very high gratitude, with observed scores ranging from 24 to 44. This distribution warrants further examination for potential restriction of range, which can attenuate estimated correlations (Sackett & Yang, 2000), and ceiling effects, which may reduce an instrument's ability to differentiate among individuals (Terwee et al., 2007). Nevertheless, a high proportion of participants in the upper category does not establish either condition. Examination of the raw score distribution, frequency of maximum scores, and theoretical score range is required. Scoring validity is also important because the referenced Indonesian adaptation of the GQ-6 comprises 11 items representing two factors (Grimaldy & Haryanto, 2020). The instrument version, reverse-coded items, score range, and reliability estimates should therefore be verified before drawing further conclusions.

Regarding employment characteristics, 225 participants (67.8%) worked 20 hours per week, whereas 107 (32.2%) worked more than 20 hours. Additionally, 181 participants (54.5%) were employed in the formal sector, and 151 (45.5%) worked in the informal sector. However, these categories do not adequately capture workload, schedule control, or academic conflict. Samaratunga et al. (2025) examined stressors associated with work–study conflict, while Wilding et al. (2026) highlighted the relevance of employment characteristics to the mental health of working university students. From the perspective of Conservation of Resources theory, stress is associated with threatened or actual resource loss (Hobfoll, 1989), whereas Job Demands–Resources theory emphasizes the relationship between environmental demands and available resources (Bakker & Demerouti, 2017). Both frameworks provide contextual explanations, but the present study did not directly measure role conflict or environmental demands. Therefore, the findings do not demonstrate that external factors are more influential than individual psychological resources.

Financial strain (Russell et al., 2025) and social support (Li et al., 2025) are additional variables identified in the literature as potentially relevant to student well-being. However, their contributions cannot be determined from the present data. The sample was predominantly female (70.2%) and consisted largely of students from the 2022 enrollment cohort (73.2%), with participants ranging in age from 19 to 24 years. No subgroup comparisons were reported. Furthermore, online purposive sampling may introduce selection bias (Bethlehem, 2010), limiting the generalizability of the findings beyond participants with characteristics similar to those included in this study.

Regression diagnostics revealed no statistically significant deviations from residual normality or linearity. The residual scatterplot showed no pronounced pattern indicative of heteroscedasticity, while tolerance values of 0.972 and variance inflation factors (VIFs) of 1.029 indicated no serious multicollinearity concerns. Nevertheless, measuring all constructs using self-report questionnaires at a single time point may introduce common method bias (Podsakoff et al., 2003), which was not directly assessed. Instrument reliability, scoring procedures, score distributions, and potentially influential observations also require further examination.

Overall, the contribution of this study lies in demonstrating the limited predictive utility of a model comprising two dispositional psychological variables among working university students, rather than challenging the theoretical relevance of mindfulness or gratitude. Future longitudinal studies, facet-level analyses of mindfulness, psychometric evaluations of gratitude, and expanded models incorporating work–study conflict, actual working hours, financial strain, and social support may help evaluate alternative explanations. These findings provide a foundation for developing more comprehensive models of mental well-being among working university students without attributing the observed results to factors that were not directly examined.

Practical Implications

From a practical perspective, the findings highlight the importance of exercising caution when using mindfulness and gratitude as the sole foundations for programs designed to improve mental well-being among working university students. Because neither variable demonstrated a statistically significant predictive association, the present study does not provide evidence that increasing mindfulness or gratitude would directly improve mental well-being in this population. However, the findings also do not establish that mindfulness- or gratitude-based interventions are ineffective, as the study did not employ an experimental or intervention design. Universities may consider more comprehensive support strategies, including accessible counseling services, academic advising, and time-management skills development. Employers may also consider improving communication regarding work schedules and the responsibilities of working students.

These recommendations represent potential practical applications informed by the study context rather than interventions whose effectiveness has been established by the present findings.

Limitations and Recommendations for Future Research

This study has several limitations. First, the cross-sectional design precludes causal inferences regarding the relationships among mindfulness, gratitude, and mental well-being. Second, reliance on self-report measures may introduce response bias and measurement error. Third, purposive sampling through social media limits sample representativeness and the generalizability of the findings. Fourth, the unequal distribution of participants by gender and enrollment cohort, together with the absence of demographic covariates in the regression model, limits the assessment of potential differences across participant subgroups. Fifth, the use of a total mindfulness score and the concentration of gratitude scores within the very high category warrant further psychometric examination.

Future research should evaluate individual mindfulness facets, examine the distribution and measurement properties of gratitude scores, and incorporate contextual variables such as work–study conflict, academic workload, employment intensity, financial strain, and social support. Longitudinal or mixed-methods designs may also provide a more comprehensive understanding of changes in mental well-being and the experiences of working university students.

Overall, the findings indicate that mindfulness and gratitude, whether examined individually or jointly, did not demonstrate statistically significant predictive associations with mental well-being among the 332 working university students. Together, these predictors explained only 0.5% of the variance in mental well-being, indicating that the model had very limited explanatory power. These findings provide an empirical basis for reconsidering models focused exclusively on individual psychological resources and for developing future research that accounts for measurement characteristics and the broader life circumstances of working university students. Nevertheless, the relative contributions of additional factors require further investigation using appropriate research designs and measurement approaches.

CONCLUSION

This study found that mindfulness and gratitude, both individually and jointly, were not statistically significant predictors of mental well-being among working university students. Multiple linear regression analysis indicated that the two variables explained only 0.5% of the variance in mental well-being ($R^2 = .005$, $p = .460$), demonstrating the model's very limited explanatory power. These findings do not suggest that mindfulness and gratitude are irrelevant to mental well-being; rather, they indicate that these psychological resources did not demonstrate meaningful predictive contributions within the model and sample examined. The study contributes empirical evidence to positive psychology research by highlighting the importance of considering measurement characteristics and the life circumstances of students who simultaneously manage academic and employment responsibilities.

The findings underscore the need to develop more comprehensive models of mental well-being that incorporate both individual psychological factors and contextual conditions, including work–study conflict, employment intensity, financial strain, and social support. However, the contributions of these factors require empirical investigation because they were not directly measured in the present study. Future research should employ longitudinal designs, examine individual mindfulness facets, and establish the validity and reliability of gratitude measurements. From a practical perspective, the findings encourage universities and employers to consider integrated approaches to supporting students' mental well-being that address not only personal psychological resources but also their academic and employment-related needs.

DECLARATION

Ethics approval and consent to participate

This study was approved by the Research Ethics Committee of the Faculty of Psychology, Universitas Muhammadiyah Malang, Indonesia (Approval No. E.6.m/583/KE-FPsi-UMM/IV/2026). All research procedures were conducted in accordance with the ethical requirements for studies involving human participants. Before completing the online questionnaire, participants received information regarding the study objectives, research procedures, voluntary participation, and their rights as research participants. Electronic informed consent was obtained from all 332 participants before their participation in the study.

Consent for publication

Not applicable. This manuscript does not contain personally identifiable information, individual photographs, or other materials requiring separate consent for publication. All participants provided informed consent for the use of their anonymized research data for scientific reporting and publication purposes.

Availability of data and materials

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request. Data sharing is subject to applicable ethical considerations and confidentiality requirements to protect participants' privacy.

Conflicts of interest Statement

The author declares no financial, professional, or personal conflicts of interest that could have influenced the design, implementation, analysis, interpretation, or reporting of this study.

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Artificial Intelligence-Assisted Technology

Generative artificial intelligence technology, specifically ChatGPT (OpenAI), was used to assist with language editing, translation, manuscript organization, and refinement of academic writing. AI-assisted technology was not used to recruit participants, collect research data, or conduct statistical analyses. The author retains full responsibility for verifying the accuracy of AI-assisted content, ensuring the integrity of the scientific interpretations and references, and approving the final manuscript. The use of AI-assisted technology does not

replace the author's accountability for the originality, accuracy, and scientific integrity of the research.

Authors' Contributions

Both authors contributed to the conception and design of the study, research implementation, data analysis and interpretation, and manuscript preparation and revision. Both authors reviewed and approved the final version of the manuscript and agreed to be accountable for the accuracy and integrity of the work.

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