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Does Academic Grit Mediate the Association Between Family Support and Mental Health Among Muslim University Students in Indonesia?

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Abstract

Mental health among university students is a growing global concern, yet studies on Muslim students in Indonesia have rarely examined how social and motivational factors jointly shape positive psychological outcomes, with most research relying on deficit-oriented instruments. This study examined whether academic grit mediates the effect of family support on the mental health of Muslim university students in Indonesia. Data were collected from 537 Muslim university students in Pontianak and Yogyakarta using three validated instruments: the Family Support Scale (FSS; 20 items), the Academic Grit Scale (AGS; 10 items), and the Indonesian version of the Arabic Scale of Mental Health (ASMH; 36 items), all using a four-point Likert format. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 4. Family support was positively associated with both academic grit (β = 0.371, T = 8.675) and mental health (β = 0.453, T = 11.057). Academic grit was also positively associated with mental health (β = 0.227, T = 5.743), and together the two constructs accounted for 33.3% of the variance in mental health outcomes. Bootstrapping analysis indicated a statistically significant indirect association between family support and mental health through academic grit (β = 0.084, 95% CI: 0.049 to 0.125), although the magnitude of this indirect pathway was limited relative to the direct association (Variance Accounted For = 15.64%). These findings suggest that, within this cross-sectional design, family support is associated with student wellbeing primarily through a direct pathway, with academic grit representing an additional but comparatively modest statistical mechanism. The results tentatively support the integration of family-inclusive counselling approaches and grit-focused developmental programmes in higher education institutions serving Muslim student populations.

INTRODUCTION

Mental health among university students has become a pressing global concern, with high prevalence rates of anxiety and depressive disorders documented across higher education populations (Auerbach et al., 2018). In Indonesia, data from the Indonesia National Adolescent Mental Health Survey (I-NAMHS, 2021) revealed that approximately 34.9% of youth aged 10 to 17 years experienced a mental health problem in the preceding year, yet only 2.6% received professional services. Despite this growing body of evidence, most existing research relies on disorder-based frameworks and has not sufficiently examined how family-level and academic

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motivational factors jointly relate to positive mental health outcomes among Muslim university students. This study examines whether academic grit statistically mediates the association between family support and mental health among Muslim university students in Indonesia.

University students represent a psychologically vulnerable group, as they face academic pressures and major life transitions simultaneously (Limone & Toto, 2022). An international WHO survey of first-year students across eight countries found that more than one third of participants met criteria for at least one DSM-IV disorder in the preceding 12 months, with depression and anxiety as the most prevalent conditions (Auerbach et al., 2018). In Indonesia, elevated academic demands contribute to anxiety, depression, and academic burnout among university students (Kirdchok et al., 2022). These challenges become more complex for Muslim students, as academic pressures intersect with religious identity and family values that shape how students interpret and cope with stress.

Family support is consistently identified as a primary resource protecting students' psychological well-being. A supportive family environment has been associated with stronge psychological capital and coping skills, which correspond with better emotional regulation and academic motivation (Wang et al., 2022). Research has further shown that social support from family is associated with lower psychological distress and better adjustment during university years (Emadpoor et al., 2016). Among Indonesian Muslim university students specifically, family support has been associated with higher self-efficacy and greater engagement in academic life (Paulina et al., 2024; Adelia et al., 2024). These findings collectively suggest that the family may constitute an important correlate of psychological wellbeing during higher education.

Academic grit, defined as perseverance and passion for long-term goals, is a construct that has been consistently associated with student mental health (Duckworth et al., 2007). Students with higher levels of grit tend to report managing stress more effectively and sustaining academic engagement even when confronted with setbacks (Poots & Cassidy, 2020). Grit has also been associated with students' capacity to interpret adversity as an opportunity for growth, corresponding with better academic outcomes and psychological wellbeing (Chaudhry et al., 2024). Beyond its association with mental health, academic grit has itself been linked to family-level factors. According to self-determination theory, environments that fulfil individuals' basic psychological needs for autonomy, competence, and relatedness are associated with more sustained forms of motivation, including perseverance toward long-term goals (Ryan & Deci, 2000). A supportive family environment, characterised by warmth, encouragement, and autonomy-supportive parenting, may fulfil these psychological needs and is therefore theoretically expected to be associated with higher levels of academic grit (Du et al., 2023). This theoretical link provides the basis for examining academic grit as a construct that connects family support with student mental health

Islamic spirituality is also a relevant contextual factor for understanding Muslim students' wellbeing, although it was not included as a variable in the present study. Prior research suggests that spiritual practices such as prayer and Qur'anic recitation are associated with lower anxiety and greater psychological resilience (Afiani & Haririe, 2024; Bano et al., 2025), and that religiosity may moderate the association between stress and wellbeing among Muslim university students in Indonesia (Daulay et al., 2022). This body of research suggests that family relationships among Indonesian Muslim students are often embedded within a broader religious framework, which may shape how family support is experienced and expressed. This cultural backdrop is acknowledged here as context for interpreting the present findings, rather than as a variable formally tested in this study.

A fundamental methodological limitation in the existing literature concerns the operationalization of mental health itself. Keyes (2005) argued that mental health and mental illness are two distinct dimensions that cannot be treated as opposite ends of the same

continuum, meaning that measuring mental health solely through disorder indicators produces an incomplete picture. Most prior studies have used disorder-oriented instruments, while positively oriented tools such as the Arabic Scale of Mental Health (ASMH) developed by Abdel-Khalek (2011), which captures indicators including satisfaction, optimism, self-confidence, and emotional stability, remain underutilized in this context. Although the association between family and social support and lower psychological distress has been established (Hu & Cai, 2022; Jibeen, 2016), how family support interacts with academic grit to shape positive mental health outcomes has not been adequately explored. Research that integrates positive psychology perspectives, family systems, and academic grit is therefore needed to provide a more comprehensive understanding of Muslim student well-being.

The Present Study. Addressing the gap in understanding how family-level and academic motivational factors jointly predict positive mental health among Muslim university students, this study examines the relationships between family support, academic grit, and mental health in a sample drawn from universities in Yogyakarta and Pontianak, Indonesia. Four hypotheses are proposed: family support is positively associated with students' mental health (Hypothesis 1); family support is positively associated with academic grit (Hypothesis 2); academic grit is positively associated with students' mental health (Hypothesis 3); and academic grit statistically mediates the association between family support and students' mental health (Hypothesis 4). By employing the ASMH as a positively oriented measurement instrument and attending to the cultural context of Indonesian Muslim students, this study contributes to a more nuanced understanding of how family, academic, and social factors interact to shape student well-being.

METHODS

Design

This study employed a quantitative approach with a correlational survey design. This design was selected because it is well suited for simultaneously testing predictive and mediational relationships among latent variables in a large, geographically distributed population. The correlational survey framework enables direct examination of whether academic grit functions as a mediator between family support and the mental health of Muslim university students.

Participants

The study population consisted of active Muslim University students enrolled at several higher education institutions in Pontianak and Yogyakarta. Participants were recruited through voluntary-response sampling via an online survey administered using Google Forms, the link to which was distributed openly to students across various study programmes and academic networks. Because participation depended on students' access to the survey link and their willingness to respond, the sample may not fully represent the broader population of Muslim university students in Indonesia, and generalisability of the findings should be considered with this limitation in mind. The selection of Pontianak and Yogyakarta was based on the diverse socioreligious backgrounds, and academic environments present in both cities, which were expected to enrich understanding of Muslim student mental health dynamics in Indonesia. Inclusion criteria were: (1) currently enrolled as an active student, (2) Muslim, and (3) willing to participate voluntarily. A total of 537 participants were included in the study. Although sample size was not determined through a priori power analysis, the final sample of 537 participants substantially exceeded the minimum sample size recommendations for PLS-SEM, which suggest a minimum of ten times the largest number of indicators pointing to a single construct (Hair et al., 2019), corresponding to a minimum requirement well below the achieved sample size. Demographic characteristics of the sample are presented in Table 1.

All study procedures were conducted in accordance with applicable research ethics principles. Participation was voluntary, and the online survey form included an opening statement describing the study purpose, guarantees of anonymity and data confidentiality, and the right to withdraw at any time without consequence. Informed consent was indicated explicitly by participants prior to completing the questionnaire. No personally identifiable information was collected, and all data were used solely for scientific purposes.

Table 1. Demographic Characteristics of Participants (N = 537)

Variable	Category	n	%
Sex	Female	406	75.6
	Male	131	24.4
Age (years)	Mean = 19.73 (SD = 1.49)	—	—
Semester	1st Semester	220	41.0
	3th Semester	93	17.3
	5th Semester	64	11.9
	7th Semester	153	28.5
	Other	7	1.3

Instruments

Data were collected using three standardised scales, all employing a four-point Likert response format (1 = Strongly Disagree to 4 = Strongly Agree). First, the Family Support Scale (FSS), adapted from Solmaz and Korkmaz Aslan (2024), was used to measure the level of family support perceived by students. The scale comprises 20 items; a sample item is "My family loves me." Validity and reliability were examined using Confirmatory Factor Analysis (CFA). Results indicated excellent internal consistency, with Cronbach's Alpha and Composite Reliability values exceeding 0.95. Second, the Academic Grit Scale (AGS), developed by Clark and Malecki (2019), was used to assess students' academic perseverance. The scale consists of 10 items; a sample item is "I push myself to do my personal best in school." CFA results demonstrated high reliability, with Cronbach's Alpha of 0.893 and Composite Reliability of 0.913. Third, the Indonesian version of the Arabic Scale of Mental Health (ASMH), validated by Hartanto et al. (2024), was used to measure students' positive mental health. The scale comprises 36 items spanning six components: satisfaction, self-confidence, optimism, enjoyment, meaningful life, and emotional stability (Abdel-Khalek, 2011). A sample item is "I feel cheerful." CFA results indicated very high internal consistency, with Cronbach's Alpha and Composite Reliability values exceeding 0.95. Across all three constructs, reliability standards were met, confirming that the items used consistently represent their respective latent concepts.

Procedure

Data collection was carried out over a two-month period involving students from various faculties and study programmes in Pontianak and Yogyakarta. The Google Forms survey link was distributed through academic networks and study programme coordinators. No financial compensation was provided to participants. Once data collection was complete, the responses were processed through CFA to assess instrument reliability and construct validity, before structural relationships among variables were examined.

Data Analysis

Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed to test the measurement model and structural relationships among variables. PLS-SEM was selected for its suitability in estimating both measurement and structural relationships simultaneously

and its robustness to deviations from multivariate normality, which is common in Likert-scale survey data (Hair et al., 2019). Prior to analysis, all survey items were set as mandatory fields, resulting in a complete dataset with no missing values. Analysis proceeded in two stages. The first stage involved evaluation of the measurement model (outer model) through assessment of convergent validity, discriminant validity, and composite reliability. The second stage involved evaluation of the structural model (inner model) to test the study hypotheses, including the indirect association of academic grit in the relationship between family support and mental health, given the cross-sectional and correlational nature of the design. The significance of path coefficients and indirect effects was assessed using a bootstrapping procedure with 5,000 resamples, following recommended practice for PLS-SEM (Hair et al., 2019). All analyses were conducted using SmartPLS version 4.

RESULTS

Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM), implemented in SmartPLS version 4. PLS-SEM is suited to this study because it supports both theory testing and predictive analysis within complex models containing reflective constructs (Hair et al., 2019). The analytic process proceeded in two stages: first, evaluation of the measurement model (outer model) to establish the validity and reliability of the constructs; second, evaluation of the structural model (inner model) to test the hypothesised relationships among variables.

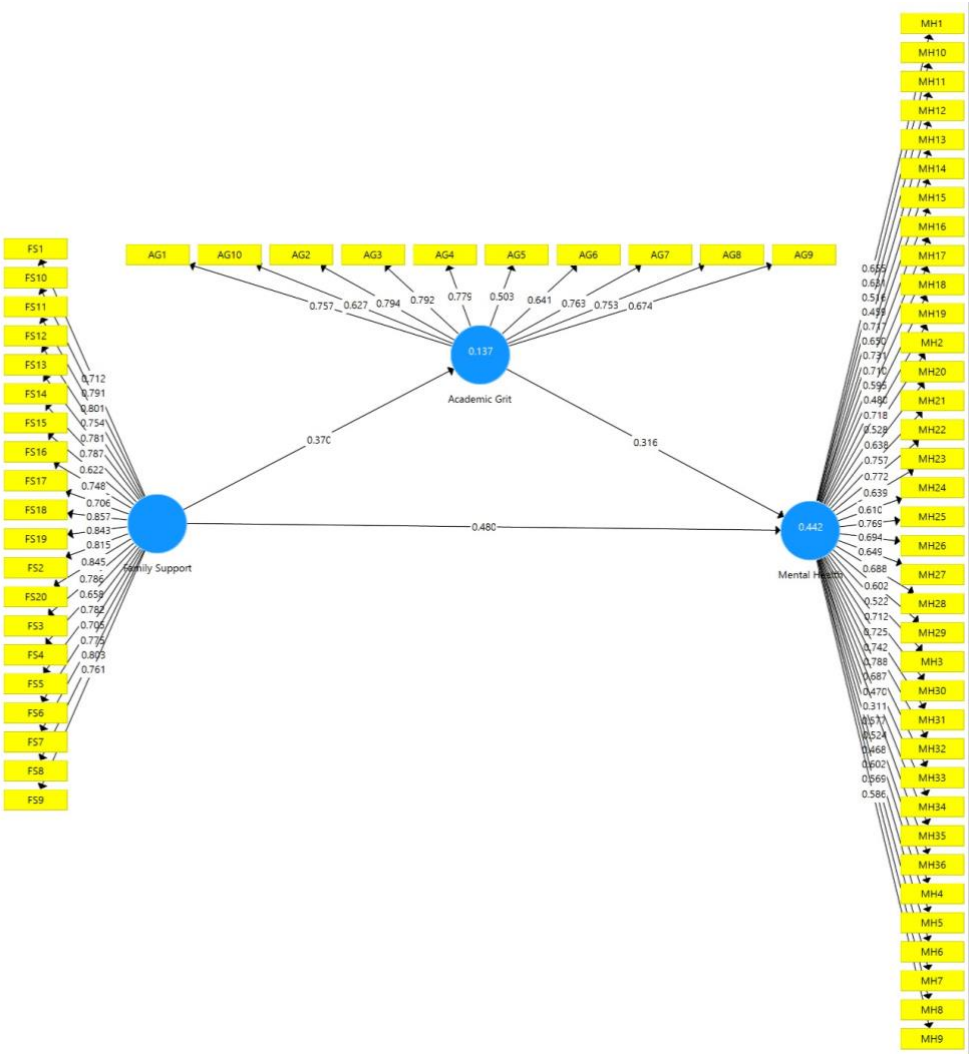

Figure 1. Initial Measurement Model (PLS-SEM)

Figure 1 presents the initial measurement model, displaying outer loading values for each indicator. Although most indicators exceeded the recommended minimum threshold, several indicators across the Academic Grit and Mental Health constructs returned loading values below 0.60. Specifically, one indicator from the Academic Grit Scale (AG5) and fifteen indicators from the ASMH (MH1 through MH12, MH18, MH35, and MH36) were removed due to insufficient loading values. To ensure a robust final measurement model, a purification process was undertaken in which these low loading indicators were removed. The refined model, consisting of nine indicators for Academic Grit and twenty one indicators for Mental Health, is shown in Figure 2. Although this purification process reduced the number of indicators, the retained items continued to represent the core dimensions of each construct as intended by the original scales, thereby preserving the substantive content coverage of both the Academic Grit Scale and the ASMH.

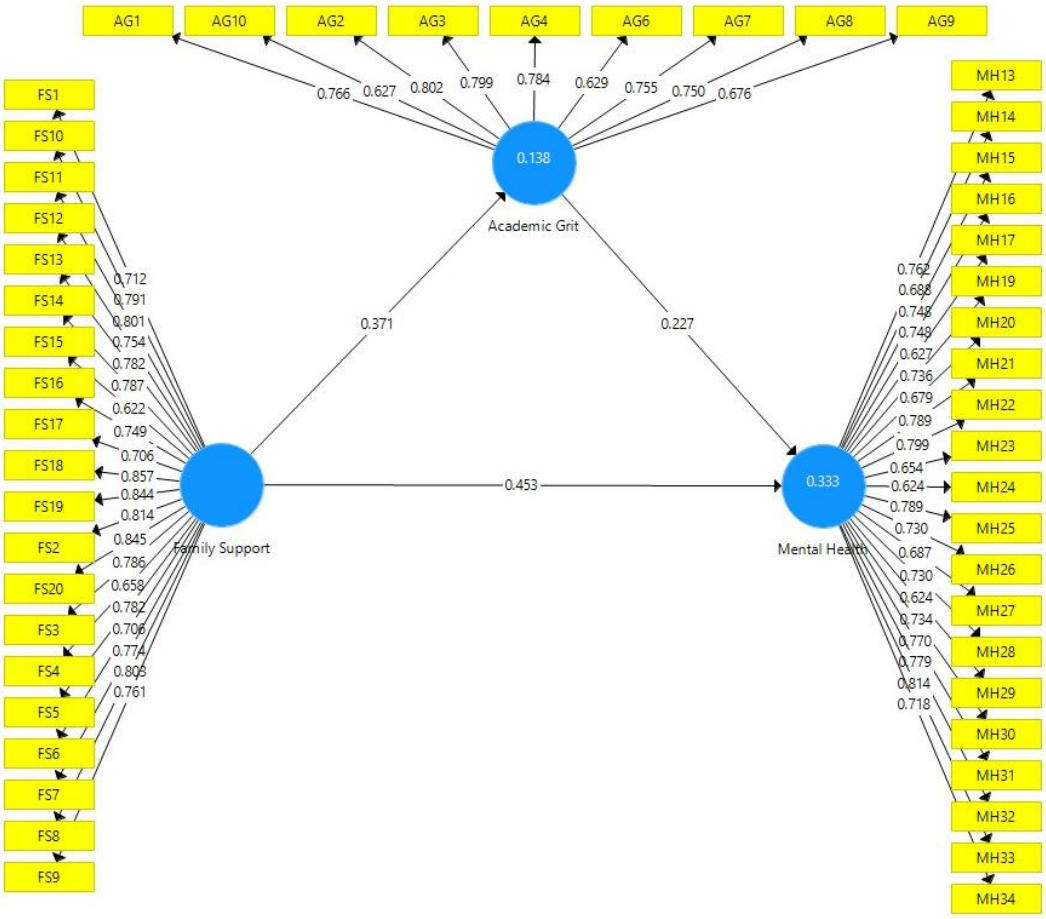

Figure 2. Final Measurement Model (PLS-SEM)

Figure 2 presents the final structural model after purification. All retained indicators demonstrated outer loading values above 0.60, satisfying the criterion for adequate convergent validity (Hair et al., 2019). The detailed results of the measurement model, including outer loadings and reliability and validity indices, are presented in Table 1. Family support was positively associated with academic grit ($\beta = 0.371$) and with mental health ($\beta = 0.453$), while academic grit was also positively associated with mental health ($\beta = 0.227$). The R^2 values of 0.138 for academic grit and 0.333 for mental health indicate that the model explains a meaningful proportion of variance in both outcomes, reflecting the substantial association between family support and both academic resilience and psychological wellbeing among Muslim university students.

Table 2. Result of Measurement Model

Variable	Item	Outer Loading	α	CR	AVE
Academic Grit	AG1	0.766	0.893	0.913	0.540
	AG10	0.627			
	AG2	0.802			
	AG3	0.799			
	AG4	0.784			
	AG6	0.629			
	AG7	0.755			
	AG8	0.750			
	AG9	0.676			
Family Support	FS1	0.712	0.963	0.966	0.591
	FS10	0.791			
	FS11	0.801			
	FS12	0.754			
	FS13	0.782			
	FS14	0.787			
	FS15	0.622			
	FS16	0.749			
	FS17	0.706			
	FS18	0.857			
	FS19	0.844			
	FS2	0.814			
	FS20	0.845			
	FS3	0.786			
	FS4	0.658			
	FS5	0.782			
	FS6	0.706			
	FS7	0.774			
	FS8	0.803			
	FS9	0.761			
Mental Health	MH13	0.762	0.955	0.959	0.529
	MH14	0.688			
	MH15	0.748			
	MH16	0.748			
	MH17	0.627			
	MH19	0.736			
	MH20	0.679			
	MH21	0.789			
	MH22	0.799			
	MH23	0.654			
	MH24	0.624			
	MH25	0.789			
	MH26	0.730			
	MH27	0.687			
	MH28	0.730			
	MH29	0.624			
	MH30	0.734			
	MH31	0.770			
	MH32	0.779			
	MH33	0.814			
	MH34	0.718			

All three constructs demonstrated excellent internal consistency. Cronbach's Alpha and Composite Reliability values exceeded 0.80 for all constructs, with Academic Grit approaching 0.90 (α = 0.893; CR = 0.913), and both Family Support and Mental Health exceeding 0.95. These results confirm that the items within each construct reliably represent their respective latent concepts. The Average Variance Extracted (AVE) values were also above the minimum

threshold of 0.50 for all constructs, indicating that each latent construct accounts for more than half of the variance in its indicators.

Discriminant validity was assessed using the Fornell-Larcker criterion. The square root of AVE for each construct exceeded its correlations with all other constructs. For instance, the diagonal values for Family Support (0.769) and Mental Health (0.727) surpassed their inter-construct correlations, confirming that each construct is empirically distinct from the others in the model (Table 2).

Discriminant validity was further examined using the Heterotrait Monotrait Ratio (HTMT), a more robust criterion than Fornell Larcker for detecting potential collinearity between constructs (Table 3). All HTMT values in this study were well below the conservative threshold of 0.85, ranging from 0.390 to 0.548. Specifically, the HTMT value between Family Support and Academic Grit was 0.390, between Mental Health and Academic Grit was 0.417, and between Mental Health and Family Support was 0.548. These results confirm that the three constructs, namely Academic Grit, Family Support, and Mental Health, are empirically distinct from one another, providing additional support for the discriminant validity already established through the Fornell Larcker criterion.

Table 3. Heterotrait-Monotrait Ratio (HTMT)

	Academic Grit	**Family Support**
Academic Grit		
Family Support	0,390	
Mental Health	0,417	0,548

Table 4 presents the results of the structural model assessment. All three hypothesized paths were statistically significant, with t statistics exceeding 1.96 and p values below 0.001. Family Support was positively associated with Academic Grit ($\beta = 0.371$, $t = 8.675$, $p < 0.001$), and with Mental Health ($\beta = 0.453$, $t = 11.057$, $p < 0.001$). Academic Grit was also positively associated with Mental Health ($\beta = 0.227$, $t = 5.743$, $p < 0.001$). Collinearity was assessed using the Variance Inflation Factor (VIF), with all values (1.000 to 1.160) well below the conservative threshold of 3, indicating no multicollinearity concerns among the predictor constructs. Effect size (f^2) analysis indicated that Family Support had a moderate effect on Academic Grit ($f^2 = 0.160$) and a moderate to large effect on Mental Health ($f^2 = 0.265$), whereas Academic Grit demonstrated only a small effect on Mental Health ($f^2 = 0.067$).

Table 4. Structural Model Test Results (Path Coefficients)

Path	**β**	**Mean**	**STDEV**	**t**	**p**	**VIF**	**f²**
Academic Grit -> Mental Health	0,227	50,225	0,040	5,743	0,000	1,160	0,067
Family Support -> Academic Grit	0,371	0,374	0,043	8,675	0,000	1,000	0,160
Family Support -> Mental Health	0,453	0,458	0,041	11,057	0,000	1,160	0,265

The mediating role of Academic Grit was examined using bootstrapping with 5,000 resamples. The specific indirect effect of Family Support on Mental Health through Academic Grit was significant ($\beta = 0.084$, $t = 4.504$, $p < 0.001$), with a bootstrapped confidence interval that did not include zero (95% CI: 0.049 to 0.125), confirming the presence of a statistically significant indirect association. The total effect of Family Support on Mental Health was 0.537, compared to a direct effect of 0.453, yielding a Variance Accounted For (VAF) of 15.64%. Following common thresholds, this VAF value falls below the 20% cutoff typically used to indicate partial mediation, suggesting that although Academic Grit statistically mediates the association between Family Support and Mental Health, its contribution is limited in magnitude relative to the direct association. These findings indicate that Family Support is associated with Mental Health primarily through a direct pathway, with Academic Grit serving as a significant but comparatively minor indirect mechanism. The NFI value of 0.794 fell below the

conventional threshold of 0.90, suggesting that model fit, while supported by an acceptable SRMR value, should be interpreted with some caution.

Table 5. Mediation Test Results (Indirect Effects)

Path	β	Mean	STDEV	t	p	CI 2,5%	CI 97,5%
Family Support → Academic Grit → Mental Health	0,084	0,084	0,019	4,504	<0,001	0,049	0,125

Figure 3 presents the bootstrapping results used to assess the significance of the structural model. All structural paths yielded T-statistic values exceeding the critical value of 1.96, indicating that the hypothesized relationships are statistically significant at the 95% confidence level. Specifically, the path from Family Support to Academic Grit produced a T-statistic of 8.675, indicating that family support significantly enhances students' academic grit. The direct effect of Family Support on Mental Health yielded a T-statistic of 11.057, demonstrating a strong and statistically significant positive influence on students' psychological well-being. Furthermore, the path from Academic Grit to Mental Health resulted in a T-statistic of 5.743, confirming that academic grit significantly contributes to better mental health outcomes. Overall, these findings support all proposed direct relationships in the structural model.

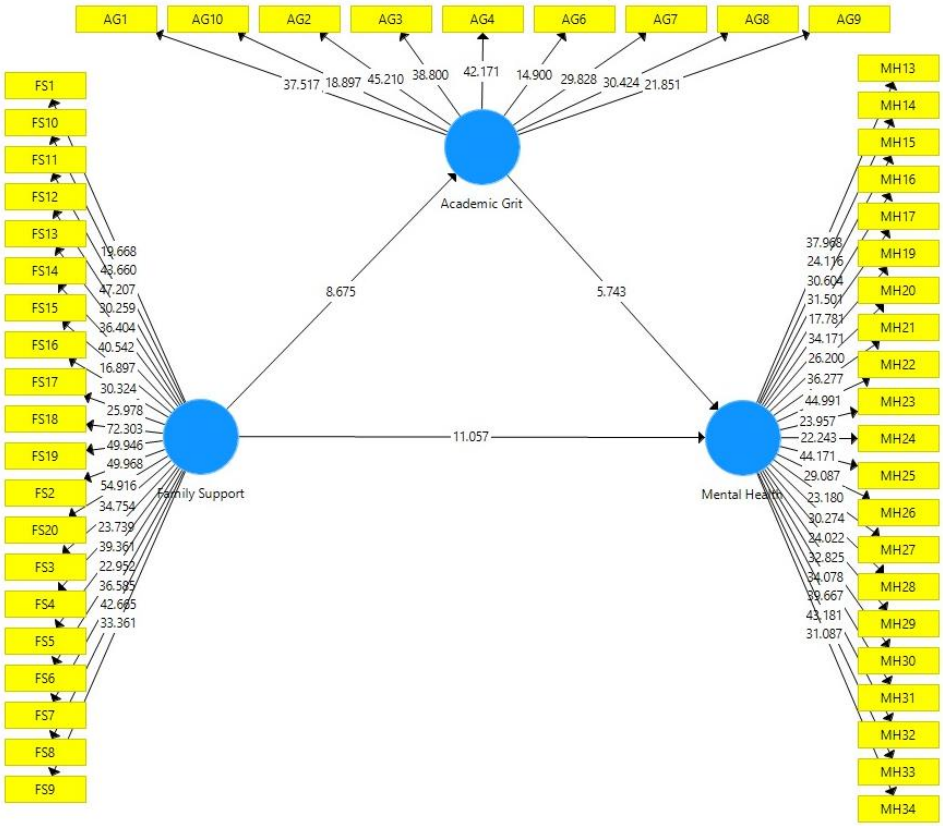

Figure 3. Results of The T-Test/bootsrapping For The Structural Model

These findings indicate that higher levels of perceived family support are associated with greater academic perseverance among students, which is also positively associated with their mental health. Taken together, the results underscore family support as a key correlate of students' academic resilience and psychological wellbeing. Beyond its direct associations, academic grit statistically mediated the association between family support and mental health, although the magnitude of this indirect pathway was relatively limited compared to the direct

association. The bootstrapping results confirmed a statistically significant indirect association between family support and mental health through academic grit, suggesting that in family environments perceived as more supportive, students who also report greater academic perseverance tend to report better psychological outcomes.

DISCUSSION

Despite growing recognition that the mental health of Muslim university students is shaped by both social and motivational factors, prior research has rarely examined how family support and academic grit operate together to predict positive psychological well-being. Most existing studies have relied on deficit-oriented outcome measures and have not integrated family systems perspectives with academic motivational constructs within a single framework. This study addressed that gap by testing whether academic grit mediates the effect of family support on the mental health of Muslim university students in Indonesia, using a positively oriented instrument to operationalize the outcome. This study found that family support was positively associated with both academic grit and mental health, and that academic grit statistically mediated the association between family support and mental health, confirming all four hypotheses.

The direct association between family support and mental health (H1; $\beta = 0.453$, $T = 11.057$, $p < 0.001$) is consistent with a substantial body of evidence demonstrating that social support from family members is linked to lower psychological distress and greater wellbeing (Wang et al., 2022; Emadpoor et al., 2016). In the context of Indonesian Muslim students, this finding is particularly meaningful because family ties are embedded in broader cultural and religious norms that value collective responsibility and interpersonal care. Students who perceive their families as emotionally present and supportive appear more likely to report greater emotional security, lower vulnerability to academic stress, and higher baseline levels of positive affect, all components captured by the positively oriented ASMH used in this study (Abdel-Khalek, 2011). The strength of this association ($\beta = 0.453$, $T = 11.057$) suggests that family support is not merely a background variable but a substantive correlate of student mental health, consistent with findings from previous studies in similar populations (Paulina et al., 2024; Adelia et al., 2024).

The positive association between academic grit and mental health (H2; $\beta = 0.227$) extends previous findings linking perseverance with psychological well-being. Students who maintain consistent effort toward long-term academic goals despite adversity tend to exhibit more effective emotional regulation strategies and demonstrate greater resilience under pressure (Poots & Cassidy, 2020; Chaudhry et al., 2024). Grit enables students to reframe setbacks as temporary obstacles rather than indicators of incapacity, and this cognitive-motivational orientation is protective for mental health. The positive association between academic grit and mental health ($\beta = 0.227$, $T = 5.743$, $p < 0.001$) extends previous findings linking perseverance with psychological wellbeing. Students who report maintaining consistent effort toward long term academic goals despite adversity also tend to report more effective emotional regulation and greater resilience under pressure (Poots & Cassidy, 2020; Chaudhry et al., 2024). Grit may help students reframe setbacks as temporary obstacles rather than indicators of incapacity, a cognitive motivational orientation that appears to be linked to better mental health. The significant association between academic grit and mental health ($T = 5.743$) indicates that perseverance is associated not only with academic functioning but also with psychological wellbeing, consistent with research by Liao and Chen (2022) linking grit to executive functioning and wellbeing. It should be noted, however, that the effect size for this path was small ($f^2 = 0.067$), suggesting that while statistically significant, academic grit's association with mental health is modest relative to the direct association observed for family support. Because this study measured mental health through indicators of satisfaction, optimism, self-

confidence, and emotional stability rather than symptom absence, the finding suggests that academic grit is associated with the presence of positive psychological states, not merely the reduction of distress.

The mediating role of academic grit in the association between family support and mental health (H4) represents a theoretically relevant contribution of this study. Bootstrapping with 5,000 resamples indicated a statistically significant specific indirect effect of family support on mental health through academic grit ($\beta = 0.084$, $t = 4.504$, $p < 0.001$), with a bootstrapped confidence interval that did not include zero (95% CI: 0.049 to 0.125). The total effect of family support on mental health was 0.537, compared to a direct effect of 0.453, yielding a Variance Accounted For (VAF) of 15.64 percent. This VAF value falls below the 20 percent threshold conventionally used to indicate partial mediation, suggesting that although academic grit statistically mediates the association between family support and mental health, its contribution is limited in magnitude relative to the direct association. This pattern suggests that a supportive family environment is associated with mental health primarily through a direct pathway, with academic grit representing an additional, though comparatively minor, indirect pathway. This is broadly consistent with research showing that parental autonomy support is associated with grit through the fulfilment of basic psychological needs (Du et al., 2023), and that parental involvement is associated with students' perseverance and academic outcomes (Lee et al., 2025), while indicating that in the present sample, the affective and direct dimension of family support carries comparatively more weight than the motivational pathway through grit.

These results also carry important theoretical implications for understanding mental health in culturally and religiously specific contexts. Prior research suggests that Islamic spiritual practices, including prayer and engagement with faith communities, are associated with lower anxiety and greater resilience among Muslim students (Afiani & Haririe, 2024; Bano et al., 2025), and that religiosity may moderate the association between stress and wellbeing in Indonesian Muslim populations (Aminnuddin, 2022). Spirituality was not measured in the present study, and therefore its role in the observed associations cannot be empirically evaluated here. Nonetheless, it is plausible that family interactions in Indonesian Muslim contexts carry religious meaning and values that frame academic effort as purposeful, and future research directly measuring spirituality alongside family support and academic grit would help clarify whether and how this dimension contributes to the pattern of associations observed in this study.

A further contribution of this study lies in its operationalisation of mental health as a positive construct. As Keyes (2005) argued, the absence of mental illness and the presence of positive mental health are distinct dimensions. The use of the ASMH, which assesses satisfaction, optimism, enjoyment, meaningful life, self-confidence, and emotional stability, shifts the analytic focus from pathology to flourishing. The R^2 of 0.333 for mental health indicates that family support and academic grit together account for a substantial proportion of variance in positive mental health outcomes, further supporting the utility of this measurement approach in research on Muslim student well-being.

Implications

These findings carry meaningful implications for guidance and counselling practice in higher education. First, the strong direct effect of family support on mental health suggests that counselling interventions should not be confined to the individual student but should actively engage family systems. Collaborative approaches involving parents and family members alongside campus-based counsellors have been shown to strengthen students' academic resilience (Mulyanti & Khasanah, 2025) and may be particularly impactful for students in collectivist cultural contexts. Counsellors working with Muslim university students are encouraged to assess perceived family support as a routine component of intake and to design family-inclusive programme components where feasible.

Second, the mediation finding implies that cultivating academic grit is a viable and proximal target for improving student mental health. Institutional programmes that develop perseverance and goal orientation, such as structured mentoring, strength-based academic coaching, and peer learning communities, may simultaneously reduce psychological vulnerability by strengthening the motivational resources students draw upon during stressful periods. These interventions do not require intensive clinical resources and can be embedded within developmental counselling services that reach students proactively rather than reactively.

Third, the pattern of results reinforces the importance of an integrative approach to student mental health that accounts for social, motivational, and cultural dimensions simultaneously. Research has consistently shown that counselling and psychotherapy effectively reduce psychological distress and build resilience (Flückiger et al., 2024), and that short-term, group-based, and blended formats can meaningfully reduce depression and stress in student populations (Kalamatianos et al., 2025; Lin et al., 2025). Extending this evidence base, the present findings suggest that interventions for Muslim students are likely to be more effective when they are contextually sensitive, acknowledging the role of family and community, rather than exclusively focused on individual symptom reduction. The involvement of non-specialist counsellors, peer counsellors, and academic advisors in building supportive networks has also been shown to extend mental health support to students who may not seek formal services (Singla et al., 2021; Connolly et al., 2021), and such collaborative models are well suited to the contextual dynamics identified in this study.

Limitations and Future Directions

Several limitations should be considered when interpreting these findings. First, the cross-sectional design precludes causal inference; although the mediation model is theoretically grounded, it is not possible to establish the temporal precedence of family support over academic grit and mental health from a single time-point survey. Longitudinal designs are needed to trace how changes in family support relate to changes in grit and mental health over the course of students' academic careers.

Second, all measures relied on student self-report, which introduces the possibility of common method bias and socially desirable responding. Future research could strengthen the design by incorporating multiple informants, such as peer or parental ratings of family support, or by using experience-sampling methods to capture day-to-day fluctuations in perceived support and well-being.

Third, the sample was drawn from universities in only two Indonesian cities, which may limit generalisability to Muslim students in other cultural, institutional, or national contexts. Replication studies in other predominantly Muslim countries or among Muslim minority student populations would help to establish the boundary conditions of the model.

Fourth, this study did not directly measure spiritual wellbeing or religiosity, despite their theoretical relevance to the population under study. Future research should incorporate these dimensions explicitly, for example, by testing whether religiosity moderates the effects of family support and academic grit on mental health (Xu et al., 2022), or whether spiritual wellbeing partially mediates these relationships (Huo, 2022). A mixed-methods extension would also be valuable to explore the qualitative experiences of how family support and academic perseverance intersect with religious identity and meaning-making among Muslim students.

CONCLUSION

The mental health of Muslim university students is shaped by a complex interplay of social and motivational resources, yet research integrating these factors within a positive

psychological framework has remained limited. Addressing this gap, the present study tested a mediation model in which academic grit was proposed as the mechanism linking family support to mental health among Muslim students in Indonesia. The findings confirmed that family support directly and positively predicted both academic grit and mental health, and that academic grit in turn partially mediated the effect of family support on mental health. Together, these two psychosocial resources explained one third of the variance in students' positive mental health outcomes as measured by the Arabic Scale of Mental Health. These results carry important implications for how higher education institutions understand and support student well-being. They indicate that family involvement is not a peripheral concern but a substantive driver of both motivational persistence and psychological flourishing among Muslim university students. Equally, the mediating role of academic grit shows that cultivating perseverance is a meaningful pathway through which supportive family relationships translate into better mental health, pointing to the value of grit-focused developmental programmes embedded within counselling services. More broadly, the findings contribute to an emerging understanding of young adult mental health in non-Western, collectivist, and faith-based contexts, demonstrating that models developed in Western settings may need to account for the foundational role of family and community in shaping the psychological trajectories of students whose identities are deeply embedded in relational and spiritual frameworks.

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AUTHOR CONTRIBUTION STATEMENT

SU served as the principal investigator, led the research conceptualization, and oversaw the overall study design and implementation. DH was responsible for data collection and coordination during the research process. MF conducted the data analysis and contributed to the interpretation of the findings. MA and RM reviewed the manuscript critically, providing substantive feedback to improve the theoretical and methodological quality of the article. All authors contributed to the writing process and approved the final version of the manuscript.

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