

The role of family environment and learning motivation in the dropout phenomenon among students in Eastern Indonesia border regions

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ABSTRACT

This study examines the role of learning motivation as a mediating variable in the relationship between the family environment and the phenomenon of school dropout in the Indonesian-Timor Leste border area. A quantitative approach was used as the explanatory research method. The population in this study comprised high school/vocational school students who dropped out of school in the Malacca Regency, East Nusa Tenggara. A sample of 120 respondents from 12 sub-districts was obtained through proportional sampling techniques. Data collection was carried out through questionnaires and data analysis using Path Analysis with the help of the SPSS 27. The results showed that family environment had a significant effect on learning motivation, with a score of 9.676 and a significance value of 0.001. Family environment had a significant effect on school dropouts, which was calculated to be 4.312 and a significance value of 0.001. Learning motivation had a significant effect on school dropouts, with a score of 4.465 and significance value of 0.001. Learning motivation was able to mediate the influence of the family environment on school dropouts, with an indirect effect of -1,048, and the Sobel test score = 12,467 > t table = 1,658; thus, the mediation was significant. This study concluded that a positive family environment can increase learning motivation and indirectly reduce the risk of dropping out of school. These findings have important implications for education policies in border areas.

Keywords: Family Environment, Learning Motivation, School Dropout.

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1. INTRODUCTION

Education is the basic right of every child that must be fulfilled to support optimal individual development. Although various programs and policies have been implemented by the government to encourage participation in education, dropout remains a significant issue in many countries, including Indonesia. A high dropout rate reflects the low quality and effectiveness of the existing education system. The high dropout rate reflects the ineffectiveness of policy-making, the suboptimal educational transition process, the low adaptability of students, and the weak implementation and dissemination of policies that have been designed (Nurmalitasari et al., 2023). Academically, a high number of students who do not complete formal education is an indicator of the inability of the education system to provide optimal services (Sorensen, 2019). Indonesia continues to face serious problems related to its high dropout rate. Based on data from the publication of the People's Welfare Indicators 2024 by the Central Statistics Agency (BPS), there has been an increase in the dropout rate at all levels of education compared to the previous year. BPS noted that In 2024, elementary school recorded the highest dropout rate of 0.46%, followed by vocational high school (SMK) at 0.27%, junior high school (SMP) at 0.19%, and senior high school (SMA) at 0.18%. This condition is even more concerning because most dropout cases occur in underdeveloped, frontier, and outermost (3T) areas, which still face various obstacles, such as limited access to education, inadequate infrastructure, and a shortage of educators. The high dropout rate in the 3T region reflects inequality in access to and quality of education services across Indonesia (Hernawati et al., 2025).

East Nusa Tenggara (NTT) Province, especially Malaka District, which shares a border with Timor Leste, still faces the problem of high school dropout rates. Malaka Regency ranks second as the region with the highest school dropout rate in NTT Province and has been classified in the red zone. One of the education levels that showed the highest dropout rate was SMA/SMK. Based on BPS NTT data for 2024, the school participation rate at this level in the Malaka district only reached 60.42%, which means that around 39.58% of students did not continue or complete their education. Schools located in the border area of Timor Leste contributed significantly to the high dropout rate. The state of education in Malaka Regency reveals a clear gap between local realities and the ideals of Indonesia's national educational goals, which aim to develop individuals who are faithful, knowledgeable, skilled, creative, independent, democratic, and responsible citizens. In the local cultural context of Malaka, formal education is often not prioritized. Children's involvement in household chores and agricultural labor is viewed as part of their socialization and family duties. These traditional values lead to the perception that education is supplementary, rather than essential, for long-term personal development or social mobility. This is especially evident among girls, who are more vulnerable to dropping out due to entrenched gender roles and early marriage practices. Such conditions contradict the principles of equality and personal empowerment emphasized in the national education policy. When cultural norms limit full participation in schooling, it becomes difficult to achieve the national objective of shaping well-rounded and capable citizens. Therefore, educational transformation in Malaka must adopt a culturally sensitive approach that integrates local wisdom with inclusive educational values to ensure meaningful and sustainable learning outcomes.

Social Cognitive Theory (SCT), developed by Albert Bandura, explains that human behavior is the result of a dynamic interaction between personal factors, environmental influences, and behavior itself. In the context of school dropout, the family environment and learning motivation are two key factors that interact and influence student decisions. The family environment serves as the primary context for social learning. A supportive family can foster positive attitudes toward education, while dysfunctional family conditions, such as conflict, lack of emotional support, or economic hardship, may decrease students' academic engagement and increase the risk of dropping out. Learning motivation as a personal factor is closely linked to self-efficacy. Students with high learning motivation tend to be more resilient to academic challenges and social pressure. By contrast, low motivation increases vulnerability to negative environmental influences. Within the SCT framework, school dropout is not merely a consequence of a single factor but rather the result of complex interactions between external conditions and internal

capacities (Ryan, 2019). The family environment is a key factor in determining the sustainability of children's education. Disharmony, low levels of parental education, and family economic limitations often increase the risk of dropping out of school (Lawrence & Adebawale 2023). Learning motivation is a dominant factor that plays a role in determining the continuation of student education, where low learning motivation is often the main trigger for dropping out of school (Rump et al., 2017). Learning motivation plays an important role in improving student academic performance. Students with high motivation levels tend to be more focused, diligent, and active in the learning process, which ultimately has a positive impact on their academic achievement. Conversely, low academic performance is often one of the factors driving students to discontinue their education; therefore, poor academic performance contributes to an increased risk of dropping out of school (Alivernini & Lucidi, 2011). From the expert's opinion, in this study, the researcher wanted to know the influence of the family environment and learning motivation on the phenomenon of dropping out of school in the border area of Indonesia and Timor Leste.

A non-conducive family environment, such as lack of emotional comfort, lack of parental supervision, and the inculcation of a negative view of the importance of education, can be major factors that encourage children to drop out of school (Oliveira et al., 2021). According to Neupane's (2024) family environment, such as the family's low socioeconomic status, higher education was never a priority, and they experienced a financial crisis that resulted in many students dropping out of school. Family environments that are aware of the importance of and need for education are more successful in creating a supportive environment for their children to receive quality education (Chenge et al., 2017). Parental characteristics such as poverty, low education, and lack of understanding of the importance of education significantly increase a child's risk of dropping out of school (Asif et al., 2021). Motivation and emotional support from family members, especially from parents, is an important factor that creates an interest in the child to continue his/her study. Thus, it can be concluded that students who come from a supportive family environment characterized by emotional support, adequate supervision, and instilling positive values towards education have a lower tendency to drop out of school than students who come from families with the opposite conditions.

Learning motivation is one of the strongest predictors of students' decisions to continue or discontinue education, with low motivation significantly increasing the risk of dropping out (Rump et al., 2017). Students with low learning motivation tend to drop out more frequently, in contrast to students with high motivation, whose decision to attend school is based on their need for autonomy and who are more likely to perform well academically and are less likely to intend to drop out (Morelli et al., 2023). Learning motivation was also shown to be significantly and inversely related to dropout. This means that the higher the level of learning motivation possessed by students, the less likely they are to stop or drop out of school. Conversely, low levels of learning motivation tend to increase the risk of students dropping out of formal education (Buizza et al., 2024). This opinion is supported by Roman et al.'s (2022) factors that hinder students' completion of school, including learning motivation. When students have low levels of motivation, they tend to lose enthusiasm to learn and face academic challenges. This can reduce their perseverance in completing their education. A high learning motivation may be associated with low dropout rates. Students who have high learning motivation tend to be confident in overcoming academic obstacles, so the tendency to choose to drop out of school is lower (Consoni et al., 2021).

This study examines the role of learning motivation as a mediating variable in the relationship between the family environment and school dropout. The novelty of the study lies in the integrative approach that links external factors (family environment) with internal factors (learning motivation) in influencing students' decisions to drop out of school.

2. METHODOLOGY

This study used a quantitative approach with an explanatory research method to test the causal relationship between the environment, learning motivation, and school dropout. The study population included high school dropouts in the Malaka district. A proportional sampling technique was used to ensure proportional representation of the 12 subdistricts that had an uneven distribution of dropouts.

Proportional sampling is the most appropriate method for this study, as it ensures a balanced representation of all subpopulations of students in the border regions of Eastern Indonesia. This method minimizes sampling bias, accurately reflects the population distribution, and enhances the external validity of the findings. Given the geographical and demographic diversity of the area, proportional sampling allows for a more representative analysis of the relationship between family environment, learning motivation, and dropout. The sample comprised of 120 respondents. Data were collected through questionnaires and analyzed using Path Analysis in SPSS 27. The operational definitions of the variables are as follows (see Table 1).

Table 1. Operational Definition of Variables

No	Variables	Definition	Indicator	Skala
1	Family Environment	Family environment refers to the circumstances or atmosphere that exist in a family, which involves interactions between family members, values adhered to, parenting, and how they communicate and support each other	Family Environment Scale: 1. Warmth 2. Expression 3. Conflict 4. Independence 5. Achievement Orientation 6. Intellectual Orientation 7. Active Recreation Orientation 8. Religious Moral Emphasis 9. Organization 10. Control (Lanz & Maino, 2023)	Likert
2	Learning Motivation	A person's motivation to do activities learning to achieve with a specific goal of understanding, skill, achievement or	1. Have motivation and strong determination to achieve success. 2. There are internal drives and individual needs in the learning process. 3. Have visions, hopes, and goals that you want to achieve in the future. 4. The availability of interesting and fun learning activities. 5. There is a supportive and comfortable learning atmosphere for students (Sauri et al., 2022)	Likert
3	Dropout School	A condition in which a person stops Education before completing the level of education that is being undertaken.	1. Poor attendance 2. Number of grade retentions 3. Number of discipline referrals 4. Number of suspensions 5. Family status 6. Interest in school 7. Special program placement (Sivakumar et al., 2016)	Likert

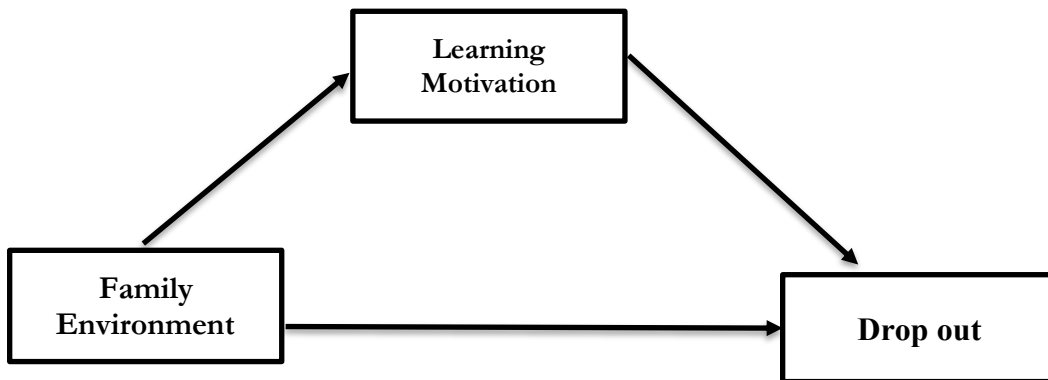


Figure 1. Research Model

Based on the above research model (see Figure 1), the hypotheses in this study can be drawn as follows:

H₁ = The Influence of Family Environment on Learning Motivation

H₂ = The Influence of Family Environment on School Dropout

H₃ = The Influence of Learning Motivation on School Dropout

H₄ = The Influence of Family Environment on School Dropout Through Learning Motivation

3. RESULT AND DISCUSSION

3.1. Respondent Characteristics

The characteristics of the respondents in this study are explained as follows:

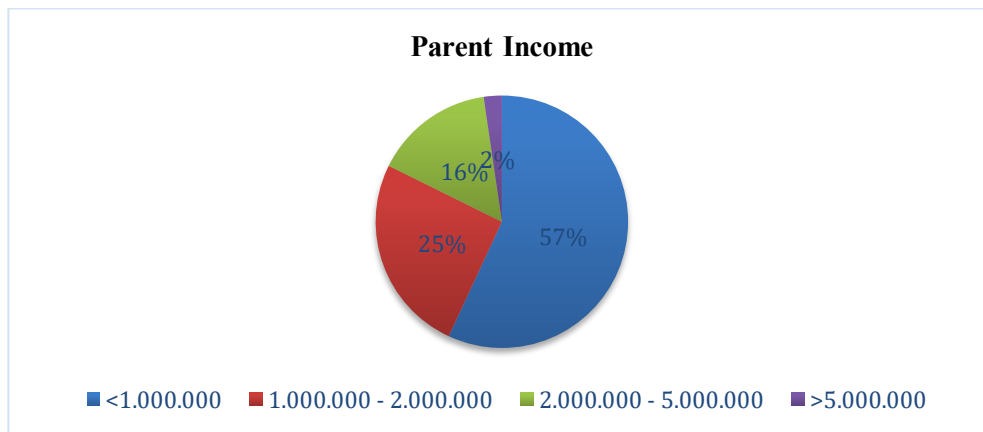


Figure 2. Parental Income

The Figure 2 shows that the majority of respondents 57% come from families with a monthly income below Rp1,000,000. Meanwhile, 25% fall within the Rp1,000,000–2,000,000 range, 16% earn between Rp2,000,000–5,000,000, and only 2% have an income above Rp5,000,000. These figures reflect the low socioeconomic conditions commonly found in Indonesia–Timor Leste border regions, where access to resources and basic services is limited. Low parental income directly affects students’ access to education and their level of support they receive at home. When basic needs are unmet, education is often deprioritized, which increases the risk of school dropout. In this context, family income plays a critical role in shaping students’ learning motivation and their decision to continue or discontinue schooling. These findings reinforce the conclusion that the family environment, particularly its economic dimension, significantly influences educational outcomes among students in the border areas.

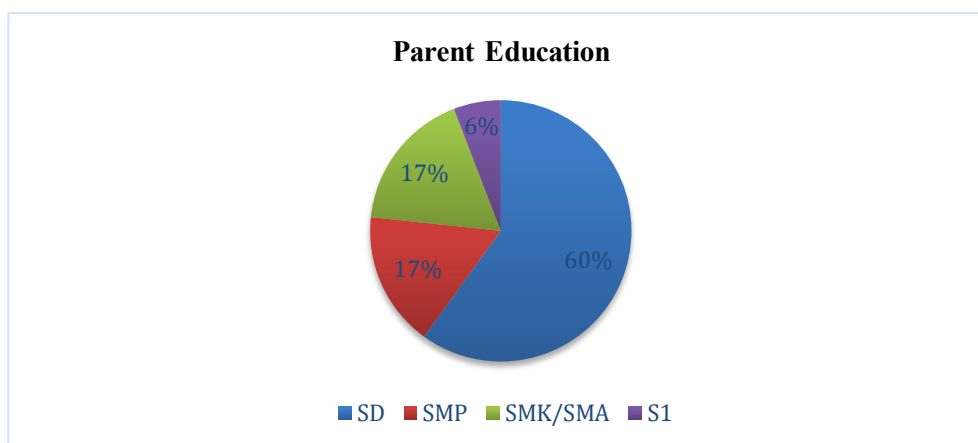


Figure 3. Parent Education

Figure 3 shows that most of the respondents' parents (60%) had completed only primary school. Meanwhile, 17% attained junior high school education, another 17% completed senior high school or vocational school, and only 6% held a university degree. This distribution reflects the generally low educational attainment in Indonesia–Timor Leste border regions, which directly affects the level of parental support for their children's education. Parents with limited education may lack awareness of the long-term value of schooling and often struggle to provide academic or emotional guidance at home. In relation to this study's findings, low parental education was associated with weaker learning motivation among students and a higher risk of dropping out. This aligns with Social Cognitive Theory, which emphasizes the role of environmental influences, such as family background, in shaping individual behavior and educational decisions.

3.2. Tests Of Classical Assumptions

The normality test was performed using the Kolmogorov-Smirnov one-sample method. The test results showed a significance value of 0.200, which is greater than 0.05. Thus, it can be concluded that the data were normally distributed. Furthermore, to detect the presence or absence of heteroscedasticity symptoms, the Glejser test was used by referring to the significance value of each variable. If the significance value is greater than 0.05, it can be concluded that there is no heteroscedasticity. Based on the test results, the significance value of the family environment variable was 0.495 and that of the learning motivation variable was 0.642. All these values exceeded the threshold of 0.05, so it can be concluded that the data were free from heteroskedasticity symptoms. A multicollinearity test was performed to determine whether there was a strong linear relationship between independent variables in the regression model. This test was performed with reference to tolerance and variance inflation factor (VIF) values. A model is said to be free of multicollinearity symptoms if the tolerance value is > 0.10 and the VIF value is < 10. The results of the analysis showed that the family environment variable had a tolerance value of 0.893 and VIF of 1.120; The learning motivation variable had a tolerance value of 0.780 and VIF of 1.282. As all tolerance values are above 0.10, and the VIF values are below 10, it can be concluded that there is no multicollinearity problem.

3.3. Analysis of Family Environment Structure Pathway 1 on Learning Motivation

Table 2. Coefficient Structure 1

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	10.395	3.376	–	3.079	.003

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Family Environment	1.039	0.107	0.665	9.676	<.001

Based on the results in Table 2 of the hypothesis test of the influence of family environment on learning motivation, a value of t was obtained $>$ t table ($9.676 > 1.658$). In addition, the significance value (p-value) of 0.001 was lower than the set significance level ($\alpha = 0.05$). Thus, it can be concluded that the first hypothesis (H_1) that the family environment has a significant effect on learning motivation is b.

3.4. Analysis of the Structure II Pathway of the Family Environment, Learning Motivation for School Dropouts

Table 3. Coefficient Structure 2

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	96.152	4.408	-	21.811	<.001
Family Environment	-0.779	0.181	-0.379	-4.312	<.001
Learning Motivation	-0.516	0.116	-0.393	-4.465	<.001

Based on the results in Table 3, the hypothesis test, the influence of the family environment on school dropout, was obtained with a t-value calculated $>$ t table ($4.312 > 1.658$). The significance value was set at $0.001 < 0.05$. Thus, it can be concluded that the second hypothesis (H_2) of family environment has a significant effect on school dropouts. Based on the results of the hypothesis test, the effect of learning motivation on school dropout was obtained with a value of t-calculated $>$ t-table ($4.465 > 1,658$). The significance value was set at $0.001 < 0.05$. So it can be concluded the hypothesis (H_4) of learning motivation has a significant effect on school dropouts is accepted.

3.5. Analysis of Structure III Pathway Indirect Influence of Family Environment through Learning Motivation on School Dropout

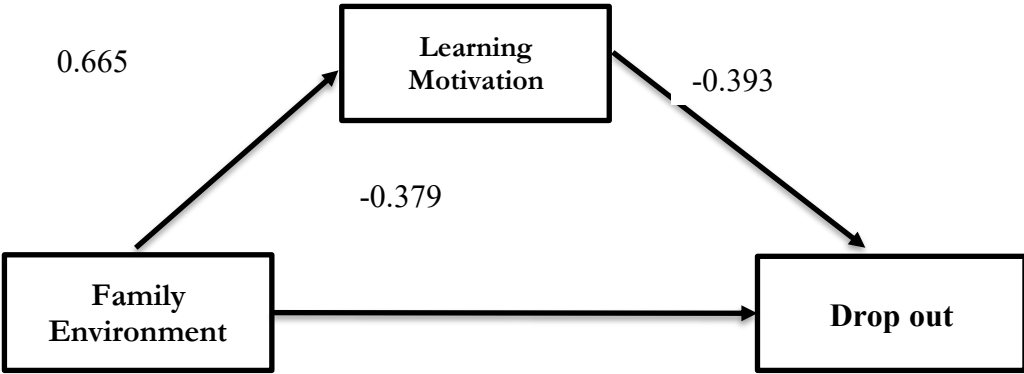


Figure 4. Indirect Influence of Model

To test whether the learning motivation variable plays a mediating role in the relationship between the family environment and the incidence of school dropouts (see Figure 4), the analysis steps were carried out as follows:

The direct influence of the family environment on dropping out of school
 = β_{21}
 = -0.379

Indirect influence of the family environment on school dropouts

$$= P_{x3x2} (p2) \times P_{yx3} (p3)$$

$$= 0.665 \times -0.393$$

$$= -1.048$$

Influence Total

$$= -0.379 + -1.048$$

$$= -1.427$$

To determine whether the effect of mediation shown by the coefficient multiplication ($p2 \times p3$) of -1.048 is significant, it is tested with the Sobel test as follows:

$$sab = \sqrt{b^2sa^2 + a^2sb^2 + sa^2sb^2}$$

$$sab = \sqrt{0.655^2 \cdot 0.107^2 + 0.393^2 \cdot 0.116^2 + 0.107^2 \cdot 0.116^2}$$

$$sab = \sqrt{(0,4290 \cdot 0,0115) + (0,15445 \cdot 0,01346) + (0,0115 \cdot 0,01346)}$$

$$sab = \sqrt{0,0049335 + 0,002078897 + 0,00015479}$$

$$sab = \sqrt{0,007167176}$$

$$sab = 0,08466$$

Based on these results, we calculated the statistical value of the influence of mediation using the following formula:

$$t = \frac{-1.048}{0,08466} = 12.467$$

From the calculation above, it can be seen that the value of t calculation = 12.467 is greater than the value of t table 1.658, so it can be concluded that learning motivation can mediate the influence of the family environment on school dropouts, and thus it can be concluded that H_5 is accepted.

3.6. Discussion

The phenomenon of school dropout in the Malaka Regency, a border area between Indonesia and Timor-Leste, is significantly influenced by unique sociocultural and economic factors. Culturally, strong traditional values often place higher importance on children's involvement in households or agricultural work than on formal education. Early marriage, particularly among girls, remains prevalent and contributes to the dropout rate. Gender norms further reinforce the belief that formal education, particularly beyond primary school, is unnecessary for females. Economically, most families rely on unstable subsistence agriculture, which makes it difficult to afford educational expenses. Children are often expected to contribute to their family income, which disrupts their schooling. Limited access to adequate educational facilities, long travel distances to schools, and a lack of transportation infrastructure pose additional barriers, particularly in remote villages. The combination of economic hardship, cultural norms, and infrastructural limitations creates an environment that discourages sustained school attendance. Therefore, interventions must be context-sensitive, culturally grounded, and responsive to the needs of communities in border regions to effectively reduce dropout rates.

This study shows that family environment affects students' motivation to learn. Although most school dropouts in the Malaka Regency come from families with low economic and educational conditions, family support still plays an important role in shaping learning motivation through parenting, parental education, emotional support, and learning facilities. A positive family environment creates a conducive learning climate and encourages student achievement in line with Bandura's Social Cognitive Theory, which states that parental support can increase children's self-efficacy and learning motivation. The family plays the role of the first environment and very closely interacts in daily life to help build motivation to complete the educational process. Families also play an important role in student development, and the family environment can affect learning motivation, which has an impact on student

learning outcomes (Luo, 2024). The family environment plays an important role in the learning process and greatly influences children's success in understanding, acquiring, and absorbing lessons from teachers. However, if family relationships are not harmonious and fail to create a comfortable and supportive atmosphere for learning, children will experience difficulties, tend to be lazy, and have low motivation to learn, which will ultimately have an impact on unsatisfactory learning outcomes (Kurniawan et al., 2023). The results of this study are supported by Marlina et al. (2018), who found that the family environment has a significant effect on student learning motivation; the better the student's family environment, the higher the student's learning motivation.

The results of this study showed that family environment has an effect on school dropouts. The results of this study are supported by Chenge et al. (2017), who found that lack of supervision of schoolwork by parents and lack of motivational words by parents contribute to school dropout. Research (Guzmán et al., 2021) shows that the family environment in rural areas is more vulnerable than families in urban areas; therefore, this variable is a predictor of dropout rates. The results of this study support previous findings in border areas with limited access to educational services. Low family awareness of the importance of education is also a significant driving factor in students' decisions to stop education or to drop out. The absence of the family in accompanying and providing support during the educational process can be a crucial factor that encourages students to decide to quit school. Without active family involvement, students tend to experience a lack of motivation, guidance, and supervision, which in turn increases their risk of dropping out of school (Putrik et al., 2024). Thus, the quality of the family environment determines the sustainability of children's learning processes at school in terms of the economic, emotional, and educational aspects.

The results of this study revealed that motivation influences the incidence of school dropout. One of the main causes is the internal factors of students, especially those related to their level of motivation to learn. Lack of drive and desire to learn are the dominant factors that encourage students to leave formal education (Arsita et al., 2022). The results of this study support the findings of Anttila et al. (2023), who state that learning motivation has a negative relationship with dropout risk. High learning motivation lowers the risk of dropping out as students are more motivated to persist and complete their education. Conversely, low motivation increases the propensity to drop out of work. Students with low motivation to learn tended to desire to quit school more often. Conversely, students with high intrinsic motivation tend to have lower dropout intentions (Morelli et al., 2023). The results of the study Rump et al. (2017) Increasing learning motivation can reduce the risk of dropping out of school because motivated students are more likely to have clear academic goals, enthusiasm to complete their education, and perseverance in the face of learning challenges. With strong motivation, students are better able to overcome the internal and external barriers that may push them to drop out.

This study proved that learning motivation mediates the influence of family and peer environments on school dropouts. The family environment, such as emotional support, parenting, and attention to education, does not directly determine whether a student will drop out of school. However, a positive family environment can increase student motivation to learn. Furthermore, this high motivation to learn reduces the risk of students dropping out of school. In other words, the influence of the family environment on school dropouts occurs through an increase or decrease in learning motivation. If the motivation to learn is formed strongly thanks to family support, then the possibility of students continuing their education increases. Learning motivation acts as a mediating variable that bridges the influence of the family environment on dropout risk. This means that a supportive family environment through attention, guidance, and encouragement of education will increase students' learning motivation. When learning motivation is high, students tend to be more committed to completing their education, despite facing challenges. Conversely, a less harmonious family environment or neglect of education can reduce learning motivation, which in turn increases the likelihood of students deciding to drop out of the school. Thus, learning motivation is a key factor that explains how and why the family environment can influence students' decisions to continue or discontinue their education.

4. CONCLUSION

This research shows that family environment and learning motivation play a significant role in students' decisions to drop out of school. An unsupportive family environment, such as a lack of supervision, attention, and awareness of the importance of education, negatively affects students' motivation to learn. By contrast, families that provide emotional support, build positive communication, and instill the value of the importance of education tend to increase children's motivation to learn. Learning motivation has been proven to be a mediating variable that bridges the influence of family environment on the decision to drop out of school. This means that families who build a positive environment can increase their motivation to learn, and ultimately reduce the risk of students dropping out of school.

Based on the research findings, preventing school dropout in Indonesian Timor Leste border regions requires an integrated strategy involving families, schools, and the government. At the family level, a program like “Parents Care About Education” should be implemented to raise parental awareness through community-based literacy training and parenting classes. Active parental involvement in supporting children's learning is essential for fostering motivation and educational persistence. In schools, a “Socially Responsive and Friendly School” program can be introduced by strengthening empathetic counseling services, organizing inspirational classes with successful alumni, and developing an early warning system for students at risk of dropping out. Teachers play a crucial role in creating supportive environments and encouraging student engagement. On the government side, the “Independent Border Schools” initiative should provide targeted scholarships, improve educational infrastructure, and offer transportation or boarding facilities for students in remote areas. Collaboration with local leaders and communities is also vital to ensuring that students remain in the school. Through the synergy of these three stakeholders, dropout prevention efforts can be more effective, ensuring equal educational opportunities for children in the border regions.

Ethical Approval

Ethical approval was not required for this study.

Informed Consent Statement

Informed consent was not obtained for this study.

Author Contributions

Retno Hernawati* was responsible for the conceptualization, research design, and overall coordination of the study. Maria Yuliana Panie contributed to the development of the theoretical framework, data collection, and drafting of the initial manuscript. Samrid Neonufa assisted in data analysis, interpretation of results, and provided critical revisions to improve the manuscript's quality. Al Ihzan Tajuddin contributed to the literature review, preparation of research instruments, and supported the editing and finalization of the manuscript. All authors have read and approved the final version of the manuscript, with Retno Hernawati serving as the corresponding author.

Disclosure Statement

No potential conflicts of interest were reported by the authors.

Data Availability Statement

The data presented in this study are available upon request from the corresponding author for privacy reasons.

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