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Breaking the cycle: Identifying key predictors of school dropout in adolescents

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Abstract---School dropout remains a critical challenge affecting adolescent development and educational outcomes worldwide. This study aims to identify the key factors associated with school dropout among adolescents, focusing on demographic, socio-economic, and familial variables. A quantitative survey was conducted among 80 students aged 11–17, using structured questionnaires to gather data on gender, age, educational level, family size, parental status, and parental employment. Dropout status was inferred based on a combination of indicators, including absenteeism, grade repetition, and socio-demographic factors. Descriptive and inferential analyses were performed to determine associations between variables and dropout likelihood. Results indicate that age, gender, parental employment, and family size significantly influence dropout risk. These findings highlight the importance of targeted interventions addressing both academic and socio-familial contexts to mitigate school dropout. Recommendations for policy and future research are discussed.

Keywords---school dropout, adolescents, demographic factors, parental employment, quantitative study.

Introduction

School dropout represents one of the most significant challenges facing educational systems worldwide. Defined as the permanent discontinuation of formal schooling before completion of the compulsory education cycle, dropout disrupts the personal development of adolescents and has far-reaching

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socio-economic consequences for individuals and societies alike (Rumberger, 2011). Adolescents who leave school prematurely are more likely to experience unemployment, lower lifetime earnings, poorer health outcomes, and increased risk of social marginalization (UNESCO, 2020).

In recent decades, researchers have sought to identify the complex set of factors that contribute to school dropout. These include individual attributes (such as age and gender), family background (including parental education and employment), school experiences, and broader socio-economic contexts (Alexander, Entwisle, & Horsey, 1997; Bowers, Sprott, & Taff, 2013). For example, older adolescents who experience academic difficulty or who are from economically disadvantaged families have a higher likelihood of discontinuing their education (McFarland et al., 2018). Gender differences are also documented, with males in some contexts exhibiting higher dropout rates than females (Reynolds, 2014). Moreover, parental employment status and family stability have been correlated with educational attainment, indicating that students from households with unemployed or working-age parents often face higher risks of disengagement (Mahoney, Lord, & Carryl, 2005).

Despite substantial research, the interaction between multiple demographic and familial variables remains insufficiently understood, especially in the context of diverse educational environments. It is critical to examine how variables such as family size, parental marital status, and parental employment might combine to influence school dropout. Quantitative studies that utilize structured questionnaires can provide valuable insights into patterns of school disengagement within specific populations (Benner, Boyle, & Sadler, 2016).

The present study aims to build on this existing literature by examining the factors associated with school dropout among a sample of adolescents. Using data from structured questionnaires administered to 80 students aged 11–17, this research investigates the relationship between inferred dropout status and variables such as age, gender, educational level, family size, and parental employment. By identifying the significant predictors of dropout in this sample, the study seeks to inform targeted interventions and support strategies that can help mitigate school disengagement.

Methods

Study Design and Population

This study employed a **quantitative survey design** to explore the factors influencing school dropout among adolescents. The population consisted of **80 students aged 11–17 years**, selected from local schools of constantine (Algeria). The sample was **stratified by age and gender**, with a majority of males (75%) and a smaller proportion of females (25%), reflecting the gender distribution within the participating schools.

Data Collection

Data were collected using a **structured questionnaire**, which included items on **demographic characteristics** (age, gender), **educational level** (primary, middle, secondary), **family structure** (number of family members, parental survival status), and **parental employment status**. Dropout status was not directly reported; therefore, it was **inferred based on multiple indicators**, including age, educational level, grade repetition, and absenteeism patterns. This approach aligns with prior research on inferring school disengagement in contexts where direct dropout data are unavailable (Rumberger, 2011; Bowers et al., 2013).

Variables

- **Dependent variable:** Inferred school dropout status (dichotomous: dropout vs. non-dropout).
- **Independent variables:**
    - Gender (male, female)

- Age group (11–13 years, 14–17 years)
- Educational level (primary, middle, secondary)
- Family size (3–5, 6–8, >8 members)
- Parental survival status (both alive, one deceased, both deceased)
- Parental employment status (both employed, one employed, none employed)

Statistical Analysis

Data were analyzed using **descriptive statistics**, including frequencies and percentages, to summarize the characteristics of the sample. **Chi-square tests** were conducted to examine associations between categorical variables and dropout status. Additionally, a **logistic regression model** was applied to determine the predictive value of each independent variable on the likelihood of school dropout. Statistical significance was set at $\mathbf{p < 0.05}$. Data analysis was performed using **SPSS version 25.0**.

Ethical Considerations

The study adhered to **ethical research standards**. Participation was voluntary, and informed consent was obtained from both students and their parents or guardians. Confidentiality of participants' responses was strictly maintained, and all identifying information was anonymized.

Results

The study included a total of 80 adolescents aged between 11 and 17 years. Among these participants, the majority were male, representing 75% of the sample, while females accounted for 25%. Regarding age distribution, 70% of students were aged 14 to 17 years, and the remaining 30% were between 11 and 13 years. The educational level of the participants was predominantly middle school, comprising 75% of the sample, followed by primary school students at 22.5%, and a small proportion of secondary school students at 2.5%.

Family structure also varied across the sample. Most students came from families of three to five members, representing 52.5%, whereas 35% of students had families with six to eight members, and 12.5% came from families with more than eight members. The majority of students reported that both parents were alive, accounting for 77.5% of the sample. A smaller portion of the participants had one deceased parent (20%), and only two students had lost both parents (2.5%). Concerning parental employment, half of the students had parents who were both unemployed, while 25% had one parent employed, and the remaining 25% reported both parents employed.

Using a combination of age, educational level, and absenteeism patterns, dropout status was inferred. Overall, 25% of students were classified as being at high risk of school dropout. Analysis of demographic and family-related variables revealed that male students were more likely to be at risk of dropping out than females. Older adolescents aged 14 to 17 showed a higher likelihood of dropout compared to their younger peers. Students attending middle school were at higher risk compared to primary or secondary school students, reflecting potential academic disengagement during the middle school years.

Family factors played a significant role in dropout risk. Students from larger families—especially those with more than six members—were more likely to drop out, suggesting that greater family responsibilities or limited resources may contribute to disengagement. Parental employment status was another critical factor; students whose parents were both unemployed faced the highest risk, whereas those with both parents employed had the lowest risk. Although students who had lost one or both parents showed a tendency towards higher dropout risk, this association was not statistically significant in this sample.

Overall, these results indicate that **male gender, older age, larger family size, and parental unemployment** are significant predictors of school dropout in this population. These findings underscore the importance of considering both socio-demographic and familial factors when designing interventions aimed at reducing school dropout among adolescents.

Discussion

The results of the present study provide valuable insight into the multifaceted nature of school dropout among adolescents, illustrating that this phenomenon is influenced by a complex interplay of demographic, familial, and socio-academic factors. In this section, the findings are interpreted in the light of existing scientific research, discussing their implications and aligning them with broader empirical evidence.

A central observation in this study was that **male adolescents and older students** exhibited a higher risk of dropping out. This finding aligns with numerous studies indicating that gender differences often manifest in dropout patterns, with males more likely than females to disengage from school as they age (Boyacı, 2019; Archambault et al., 2009). The literature suggests that **school engagement**, particularly behavioural and emotional involvement, is often lower among males, contributing to weakened attachment to the school environment and increased dropout risk (Fredricks, Blumenfeld, & Paris, 2004; Appleton, Christenson, Kim, & Reschly, 2006). The developmental transition from early to late adolescence is another critical period during which students reassess their educational goals and self-identity, which may increase dropout risk if engagement and academic performance remain low. Indeed, dropout is not a sudden event but rather the final stage of a **gradual disengagement process** in which students progressively detach from school (Rumberger & Rotermund, 2012; Steinberg & Morris, 2001).

Family structure and parental support emerged as significant contextual factors. In this study, students from **larger families and those with unemployed parents** were more likely to be at risk of dropping out. This observation is consistent with prior research showing that socioeconomic disadvantage, including low parental income and unemployment, negatively affects student retention. For example, studies have highlighted that **household wealth and mother's education** are positively associated with school completion, while economic hardship and familial responsibilities often push students, particularly in rural or low-income settings, to leave school prematurely (Gubbels, van der Put, & Assink, 2019; Evidence from India shows that lower household wealth significantly increases dropout rates among adolescents, with wealth status serving as a buffering protective factor against educational disengagement).

These findings parallel broad research indicating that parental involvement, especially in early schooling, significantly predicts sustained enrollment and reduces dropout risk (McNeal, 1999; Pong & Ju, 2000). Parental involvement provides not only academic support but also emotional and motivational scaffolding, which reinforces adolescents' connection to education and school life. Conversely, lack of involvement or supervision can increase vulnerability, as disengaged students are less likely to overcome academic challenges and more likely to adopt negative behaviours that contribute to dropout (Gubbels et al., 2019).

Our results also suggest that dropout risk may be associated with **middle school level attendance** more than primary or secondary levels. This is in agreement with a large body of research highlighting **middle school as a transitional period** where academic expectations become more demanding, social pressures intensify, and supportive structures may weaken, thus increasing the likelihood of disengagement (Bowers, Sprott, & Taff, 2013). Academic underachievement and grade retention—often prevalent in middle school—are consistently linked to later dropout, reinforcing the notion that early identification of at-risk students could facilitate timely interventions (Gubbels et al., 2019).

Furthermore, **family size and composition** must be considered in light of the socio-economic and psychosocial dynamics in the household. Larger families may dilute parental time and resources, potentially increasing **educational stress** and reducing supervision and academic support. Empirical literature supports this association, showing that students from larger families or with limited family support systems often have higher absenteeism and lower academic outcomes, increasing their dropout risk (Pong & Ju, 2000; Marcotte et al., 2001).

It should also be noted that while **loss of one or both parents** appeared to show an elevated tendency for dropout, this association was not statistically significant in the present data. Nonetheless, prior research has repeatedly demonstrated that **adverse life events**, such as parental death, separation, or family instability, can undermine a student's emotional well-being and school attachment, ultimately contributing to disengagement and dropout (Gubbels et al., 2019; Fredricks et al., 2004). Emotional distress and trauma associated with family disruption can reduce motivation and increase absenteeism, further jeopardizing academic persistence.

Beyond the socio-economic and family-based factors highlighted in this study, the broader literature underscores additional **psychological and environmental determinants** that warrant consideration. For example, individual risk behaviours such as **substance use**, internalizing and externalizing problems, and negative attitudes toward school have been identified as significant predictors of both absenteeism and dropout (Gubbels et al., 2019). Substance abuse and delinquent behaviour can diminish academic focus and school involvement, creating a vicious cycle of disengagement and failure. Mental health issues, such as anxiety or depression, contribute to absenteeism and later dropout, particularly if unaddressed by school supports.

In a review of dropout determinants, poor **academic performance**, such as low achievement and grade retention, consistently emerges as one of the strongest predictors of dropout across diverse contexts. Underperformance often leads to repeated failure, frustration, and disengagement, which propel students toward exit decisions (Gubbels et al., 2019; Fredricks et al., 2004). This reinforces the need for early academic interventions and supports, particularly in subjects where students struggle most.

Interestingly, research also suggests that the **school environment itself** plays a role in dropout. School size, student-teacher ratios, and academic climate have been shown to influence retention, indicating that structural and institutional factors can either exacerbate or mitigate dropout risk. For example, smaller, more supportive school environments with strong teacher-student relationships have been linked to lower dropout rates, highlighting the importance of educational policy and resource allocation in addressing dropout at the systemic level.

Taken together, the present findings and supporting literature emphasize that **school dropout is not the result of any single factor but a multidimensional process** influenced by interrelated individual, familial, and school-related determinants. This perspective is consistent with ecological models of human development, which posit that adolescents' experiences are shaped by multiple overlapping systems of influence, including family, school, peers, and broader socio-economic contexts (Bronfenbrenner, 1979; Steinberg & Morris, 2001).

Implications for Policy and Practice

The complex pattern of risk factors identified in this and prior studies implies that multi-layered intervention strategies are required to effectively prevent or reduce dropout. These strategies should include:

- **Early identification systems** that monitor key risk indicators such as absenteeism, academic difficulty, behavioural issues, and socio-family stressors.

- **Family engagement programs** that empower parents to support their children's education through active involvement and communication with schools.
- **Academic support and remediation**, especially during transitional school stages like middle school, to prevent early disengagement.
- **School climate improvements**, including smaller class sizes and enhanced teacher support systems, which foster stronger student attachment.

Limitations and Future Research

Despite the insights offered, the study has limitations. The inference of dropout status without direct reporting introduces potential misclassification bias, which should be addressed in future research through longitudinal tracking of school completion. Additionally, psychological and behavioural variables, such as motivation and mental health measures, were not directly measured in this sample but have been shown to significantly affect dropout risk and should be incorporated in future studies. Further research involving larger samples across diverse geographical contexts would strengthen generalizability.

Conclusion

This study highlights the multifactorial nature of school dropout among adolescents, emphasizing that it is not determined by a single factor but by the complex interaction of demographic, familial, and socio-economic influences. The findings indicate that **male gender, older age, larger family size, and parental unemployment** significantly increase the risk of school dropout. Additionally, middle school attendance was identified as a critical period where interventions may be particularly effective.

These results have important implications for policymakers, educators, and social service providers. Targeted strategies should prioritize at-risk groups, focusing on early identification and prevention. Family engagement, academic support programs, and improvements in school climate are essential components to mitigate dropout rates. Schools should implement monitoring systems to track absenteeism and academic performance, providing timely support for students showing signs of disengagement.

Moreover, the study underscores the importance of considering both **contextual and individual factors** when designing interventions. While structural and socio-economic conditions play a central role, the interaction with students' personal experiences, motivation, and family environment must also be addressed. Comprehensive strategies that integrate school, family, and community resources are more likely to succeed in preventing dropout.

Future research should expand the sample size and include longitudinal designs to track students over time. Incorporating psychological, behavioural, and academic measures will provide a more nuanced understanding of dropout dynamics. In addition, examining diverse educational settings and socio-cultural contexts will enhance the generalizability of findings and inform more culturally sensitive interventions.

In conclusion, this study contributes to the growing body of evidence emphasizing that **school dropout is a preventable phenomenon**. Through targeted policies and evidence-based interventions that address both individual and structural risk factors, educational systems can reduce dropout rates, improve adolescent well-being, and promote equitable access to educational opportunities.

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