Association between emotional intelligence and stress management skills among secondary school students: A cross sectional survey in northwestern Ethiopia

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Abstract

Emotional intelligence (EI) remains seldom prioritized while it is hypothesized to associate with adolescent stress management skills which is known to impact learning through reduced cognitive functioning like memory, attention, and concentration. This study examines whether dimensions of emotional intelligence associate with stress management skills among school-age adolescents. Using a cross-sectional survey, data were collected from 371 randomly selected students in grades 9 to 12. Stress management skills were assessed using CSI-SF, a *16-item, rated on five-point Likert scale, which showed a Cronbach's alpha of 0.74. EI was measured using the Schutte Self-Report Emotional Intelligence Test, consisting of 33 items rated on a five-point Likert scale, with a Cronbach's alpha of 0.88. Pearson's correlations examined associations between EI dimensions and stress management skills. An independent samples t-test analyzed gender differences across EI and stress management scores using SPSS version 26. Results indicated that the mean EI score for males (M = 132.6) was significantly higher than for females (M = 130.44) (p <0.05). Late adolescents exhibited a higher mean EI score (M = 146.26) compared to middle (M = 132.94) and early adolescents (M = 119.79) (p < 0.001). All dimensions of EI were significantly correlated with stress management skills. Both EI and stress management scores were similar across age and gender while both outcomes varied across age of the adolescents. Future interventions should enhance motivational regulation, social awareness, and relationship dimensions of EI to improve stress management among adolescents.*

Keywords: *Emotion, Intelligences, Stress management, adolescents,* Ethiopia

Introduction

Stress is the body's physical, mental, and emotional response to life's demands (McNamara et al., 2000; Selye, 2020). For adolescents, stress significantly affects academic performance and overall well-being. Research shows that increased stress can impair cognitive functions like concentration, memory, and problem-solving, negatively impacting learning outcomes (Baum & Contrada, 2020; Neuenschwander et al., 2021). Excessive stress during adolescence is linked to a greater risk of mental health issues such as anxiety, depression, and burnout, exacerbating academic, social,

and well-being challenges (Betz & Schifano, 2022; Compas et al., 2021). Prolonged stress can lead to physiological changes, including increased heart rate, blood pressure, and inflammation, resulting in physical problems like headache, stomachaches, and sleep disturbances (Farrell, 2023). Furthermore, stress can influence adolescent behavior, increasing the likelihood of risk-taking, substance misuse, and social withdrawal, which further complicate academic and social difficulties (Jessor, 2022; Rohde et al., 2023). High stress levels can also hinder adolescents' ability to maintain healthy relationships with peers, family, and educators, leading to feelings of isolation and worsening mental health issues (Rook, 2021; Waldrip et al., 2008).

Academic environments frequently present psychosocial, individual, and physical stressors, with normative stressors being more prevalent due to family support and care. Stress management skills remain important to help adolescents tackle with ever existing challenges of stress, though it is impractical and undesirable to prevent all distressing circumstances, as life would be monotonous without challenges that require adaptation and adjustment (Greenberg et al., 2004).

Stress management involves utilizing various strategies to minimize is adversities and to foster a more positive reaction (Khamis, 2019; Quyen, 2007). Essential elements include recognizing stressors, establishing healthy coping methods, and employing cognitive-behavioral strategies that reshape stress perceptions (Lazarus & Folkman, 1984) and establishing social support and participating in activities that enhance well-being (McKnight et al., 2002).

Efforts to improve students' emotional intelligence (EI) enhances their stress management skills. Research has shown that enhancing emotional intelligence promotes stress management (Kannus et al., 2000; Myin-Germeys, 2000) and academic success (Arnett, 1999). Individuals with high emotional intelligence tend to be more socially engaged, and greater job satisfaction is linked to increased pro-social behavior (Extremera & Fernández-Berrocal, 2005; Mayer & Salovey, 1997).

Emotional intelligence encompasses an individual's abilities to assess, express, regulate, and utilize their own emotions for problem-solving through flexible planning, creative thinking, redirected attention, and motivation (Parker, 2005). Any intervention efforts targeting the enhancement of emotional intelligence, which involves recognizing, understanding, regulating, and harnessing emotions effectively, can greatly improve stress management skills among school adolescents.

Enhanced emotional intelligence allows adolescents to identify emotional triggers, regulate their emotions, and adopt healthier coping strategies, leading to improved well-being and academic performance. Research in non-Ethiopian context indicates that students with higher emotional intelligence tend to perform better academically, achieving higher test scores and grades (Jaeger, 2003). However, evidence about the association between EI and stress management skills in Ethiopian context remains scarce. Besides, existing studies documented factors contributing to academic success while there remains a lack of detailed exploration into the extent and association of different aspects of emotional intelligence (self-awareness, self-management, social awareness, and relationship management) on stress management skills among adolescents in northwestern Ethiopia cultural context. This knowledge can inform targeted interventions designs and areas to enhance EI and improve stress management strategies, ultimately fostering better academic outcomes and mental health for adolescents in this context. Therefore, this study aims to investigate the association between different dimensions of EI and stress management skills among adolescents in the study setting. It also aims to investigate the variations of EI and stress management across gender and age.

Methods

Study Setting

Awi Nationality Administration is located in northwestern part of Ethiopia within the Amhara Regional State of Ethiopia. The language of the Awi Administration is Awgni and its administrative center is Injibara. The town is located 118 km south-west of Bahir Dar and 435 km north of Addis Ababa. The zone is divided into thirteen administrative districts, including ten districts and three town administrations. The majority of residents belong to the Awi ethnic group, varied dialects. Awi is a subgroup of the Agaw people, known for their historical significance traced back to the Zagwe Dynasty. Commonly spoken languages in the zone are Awgni and Amharic, with some areas also speaking the Gumuz language. The primary religion is Orthodox, followed by Islam and Protestants, according to the Awi National Administration Culture and Tourism Department (2015/16).

Research design

A cross-sectional study was conducted. This design facilitates efficient and cost-effective data collection from a large sample, allowing for the simultaneous assessment of emotional intelligence and stress management levels, as well as

exploration of the relationships between these variables at a single point in time.

Population

Participants in the study were senior secondary school adolescents from the Awi nationality administration who attended regular programs during the 2022/23 academic year. A total of 10807 (48% male and 52%female) pupils were enrolled in six schools.

Sampling techniques and sample size

The study focused on purposively selected schools in four districts (Injibara, Changi, Banja, and Ankasha Gougusa) due to their ease of accessibility and the researcher's familiarity with the area. Each of the selected districts had three high schools, from which one school per district was selected using purposive sampling. The total number of adolescents in these schools was 10,807. The sample size of 371 was determined using the Kothari formula (2004), considering a 5% error margin and a 95% confidence level.

Data collection methods and tools

The Schutte Self-Report Emotional Intelligence Test that consists of 33 items rated on a five-point Likert-type scale, ranging from "1" (strongly disagree) to "5" (strongly agree) was used to assess emotional intelligence. The internal consistency of 33 items of EI scale was Cronbach's alpha ($\alpha = 0.88$). Stress management skills were evaluated using the 16-item CSI-SF/Jackson, rated on a five-point Likert scale. The Cronbach's alpha for the entire stress management scale was Cronbach $\alpha = 0.74$.

Methods of data analysis techniques

A descriptive statistical analysis was performed to collect background data. An independent t-test was utilized to explore gender variances in emotional intelligence and stress management. A one-way ANOVA was employed to examine age disparities in emotional intelligence and stress management. The relationship between stress management and emotional intelligence was assessed through the Pearson product-moment correlation coefficient. Statistical tests were chosen after checking assumptions regarding sample size, normal distribution, and equality of variance and independence. The study was facilitated using the Statistical Package for the Social Sciences (SPSS) for Windows Version 26.

Ethical considerations

Ethical clearance was obtained from Injibara College of teacher's education (ICTERU, 122/24); written consent was obtained from the participants.

Results

There were 162 male (46%) and 188 (54%) female participants. The majority of the participatns (n=80, 3%) were early adolescents, while 198 (56%) were middle adolescents and 72 (21%) were late adolescents. With respect to grade, 95 (27.5%) of the respondents were grade nine students, 87 (24.8%) grade ten, 88 (25.1%) grade eleven, and 80 (22.8%) were grade twelve students (Table 1). Thus, the sample looks representative of the population.

Table 1: Back ground information

Characterstics	**Options**	**No**	**%**
Gender	Male	162	46.2
	Female	188	56.4
Age	Early adolescents	80	22.8
	Middle adolescents	198	56.4
	Late adolescents	72	20.5
Grade	9^{th}	95	27.1
	10^{th}	87	24.8
	11^{th}	88	25.1
	12^{th}	80	22.8
	Mean	SD	
Emotional intelligences level	131.46	9.69	
Stress management	56.29	7.02	

An independent sample t-test comparing the mean scores of emotional intelligence and stress management of male and female students (Table 2) revealed that male students had a significantly higher mean score (M = 132.61, SD = 9.53) compared to female students (M = 130.44, SD = 9.75), $t(348) = 0.723$, $p < .037$. This indicates the case that male students demonstrate higher emotional intelligence than their female counterparts.

Table 2 Independent samples t-test by gender

Variable	Gender	Mean	SD	t	df	Sig. (2-tailed)	Mean Difference
Emotional intelligences	Male	132.61	9.53	0.723	348	.037	2.17
	Female	130.44	9.75				
Stress management	Male	56.67	7.98	0.535	348	.046	2.46
	Female	54.21	6.04				

Regarding stress management, there was a notable difference in means between the two groups. The male students' mean score (M = 56.67, SD = 7.98) significantly differed from that of the female students (M = 54.4, SD = 6.04), $t(348) = 0.535$, $p < .046$, indicating better stress management skills.

Table 3: One way ANOVA comparing emotional intelligences by adolesents' age level

Variables	**Group**	**Mean**	**Df**	**Mean of square**	**F**	**Sig.**
Emotional intelligences	Early adolescent	119.79	2	-		0.00
	Middle adolescent	134.92	-	15.1264	98.13	-
	Late adolescent	146.26				
Stress management	Early adolescent	45.782	-	-	-	-
	Middle adolescent	49.589	2	1945.54	26.61	0.00
	late adolescent	55.595				

**. The mean difference is significant at the 0.05 level*

The results in Table 3 revealed significant mean differences between early adolescents (M = 119.79), middle adolescents (M = 134.92), and late adolescents (M = 146.26 ($F(2)=98.130$, at $p < .001$). The table shows a significant mean difference between middle adolescents (M=134.92) and late adolescents (M=146.26, at $p < .05$). This suggests that emotional intelligence significantly develops in adolescents as age increases. In summary, there is a notable disparity in emotional intelligence levels among early, middle, and late adolescents.

The analysis aimed to determine whether stress management skil scores varied significantly for early, middle, and late adolescence (Table 3). There was a significant mean difference between early adolescents (M = 45.78), middle adolescents (M = 49.58), and late adolescents (M = 55.58), at $p < .05$. Furthermore, Table 3 indicated a significant mean difference between middle adolescents (M = 49.58) and late adolescents (M = 55.59), at $p < .05$. This suggests that adolescents' stress management significantly develops as age increases.

The analysis of emotional intelligence constructs reveals a significant and positive correlation between stress management and self-awareness (r = .264, p < 0.01), emotional regulation (r =.178, p < 0.01), social awareness (r =.199, p < 0.01), and relationship management (r =.167, p < 0.01). Additionally, there is a notable correlation between self-awareness and motivational regulation (r =.271, p < 0.01), social awareness (r =.214, p < 0.01), and social relationships (r =.24, p < 0.01).

Table 4: correlation between emotional intelligences and stress management

Variable	(SM)	(SA)	(MR)	(SA)	(RM)
Stress management (SM)	1				
Self –awareness (SA)	.264**	1			
Motivational regulation (MR)	.178**	.271**	1		
Social awareness (SA)	.199**	.214**	.474**	1	
Relationship management (RM)	.167**	.240**	.369**	.381**	1

***. Correlation is significant at the 0.01 level (2-tailed).*

The data in Table 4 supports the significant and positive correlation between motivational regulation and social awareness (r =.474, p < 0.01), as well as relation management (r =.369, p < 0.01). Furthermore, the data in Table 4 highlights a significant correlation between social awareness and relationship management (r =.381, p < 0.01). Overall, all components of emotional intelligence exhibit positive correlations with each other and stress management among high school students in Awi National Administration. Notably, social awareness and stress management are positively linked, suggesting that a strong social awareness can aid in stress management, reflecting the broader trend where high emotional intelligence corresponds to proficient stress management skills.

Discussion

This study provided information about the role of the four dimensions of emotional intelligence in stress management as uniquely presented in Ethiopian context. The study reported important target area of intervention to improve student stress management skills. Our finding about the association between EI and stress management skills supports findings in other non-Ethiopian contexts such as by Smith et al. (2021), which indicated that high school students with higher emotional intelligence coped better and reported lower stress levels. Similarly, Johnson and Lee's (2022) longitudinal study showed that teens with elevated emotional intelligence were

more adept at managing stress, resulting in improved well-being and academic performance. These findings emphasize the importance of fostering emotional intelligence in educational settings to enhance stress management skills among adolescents.

Male students demonstrated higher emotional intelligence compared to their female counterparts. These results align with studies by Ormel et al. (2019), and Petrides and Furnham (2000). However, these results are against previous studies in India which reported that females excel in emotional intelligence (Austin et al., 2004; Bracket et al., 2004). This discrepancy in findings may be explained by variation in culture and gender roles across countries. Our findings support findings in Ethiopia (Gemechu, 2014) which reported higher emotional intelligence among male students where male students show superior emotional intelligence to their female counterparts. However, it contradicts with the findings by Berhanu (2018), which imply that female students exhibit greater emotional intelligence than male students. Cultural disparities in gender roles could explain the significant differences observed across different locations of Ethiopia, particularly within the male-dominated Awi culture, where females are constrained in social engagement and decision-making autonomy, contributing to their limited social exposure necessary for emotional intelligence.

Male high school students exhibit better stress management capabilities than their female counterparts. Socio-cultural and parental influences within the school environment potentially favor males over females, reflecting wider societal trends in Awi culture. Parental support and societal conventions contribute to the perception that male adolescents possess superior stress management skills.

The study found a significant increase in emotional intelligence from early to late adolescence. These findings are consistent with previous studies, such as Goleman (1998) and Fariselli et al. (2008), which also noted that emotional intelligence increases with age and evolves over time. Furthermore, a longitudinal study by Brackett et al. (2019) emphasized how structured emotional intelligence programs in schools positively influenced students' emotional skills over time, suggesting the fact that emotional intelligence increases across age through education and life experiences. As adolescents navigate complex social environments, their emotional intelligence and stress management abilities likely to improve, highlighting the importance of targeted interventions that foster these skills during critical developmental periods.

Study show that as students' emotional intelligence increases, their stress management skills improve. The Pearson correlation coefficient reveals a significant positive relationship between the two. Recent studies, such as Rieffe et al. (2021), support this, indicating that higher emotional intelligence is associated with better stress coping strategies among adolescents. Additionally, Zins et al. (2020) found that SEL programs enhance emotional skills and lower stress levels in students. This study reinforces the connection between emotional intelligence and stress management, highlighting emotional intelligence as a vital factor in how adolescents handle stress. By focusing on developing emotional intelligence in educational settings, educators can provide students with essential tools for effective stress navigation, thereby promoting overall well-being and academic success. The study is limited by its lack of control over other variables that confound the the association between EI and stress management skills. It is also limited by lack of culturally adapted measures of EI and stress management skills.

Conclusions

This study highlights the importance of emotional intelligence including self-awareness, self-management, social awareness, and relationship management in managing stress among school-age adolescents. Additionally, the research suggests that emotional intelligence and stress management abilities improve with age, emphasizing the role of maturity and life experiences in developing these skills. Future research should focus on the effectiveness of specific interventions designed to promote emotional intelligence across diverse adolescent populations.

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Conflict of interest
The authors declare that there is no conflict of interest

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