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Assessing anxiety levels and coping strategies among adolescents in the Fés-Meknés region: Implications for psychological well-being

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Abstract

Adolescence is a critical developmental phase marked by psychological challenges, including heightened anxiety and maladaptive coping strategies, which can impact long-term well-being. This study aims to assess anxiety levels and coping strategies among adolescents (ages 10–17) in the Fés-Meknés region of Morocco and evaluate their effects on overall psychological well-being. While adolescent mental health is increasingly recognized as a global priority, research in this region remains limited. A total of 93 participants were assessed using the Ways of Coping Checklist-Revised (WCC-R) for coping strategies and the State-Trait Anxiety Inventory (STAI) for trait and state anxiety levels. Additionally, demographic variables—including study level, gender, age, family characteristics, health status, and environmental factors—were collected to contextualize psychological adjustment. Data analysis was performed using SPSS Statistics v29.0.2.0. The results indicate that 58.5% of participants exhibit moderate state anxiety levels, while 53.8% show moderate trait anxiety levels. A significant positive correlation was found between state and trait anxiety ($r = .312, p < .001$), as well as between state anxiety and emotional coping strategies ($r = .260, p < .001$). Similarly, trait anxiety was positively associated with emotional coping ($r = .215, p = .003$) and negatively correlated with age ($r = -.290, p < .001$). Adolescent girls report higher levels of anxiety compared to their male counterparts. These findings support a transdiagnostic treatment approach that considers a holistic understanding of anxiety and internalizing symptoms among adolescents in North Africa, aiding in the development of more effective coping strategy interventions.

INTRODUCTION

Adolescent mental health has increasingly become a global priority, as this developmental stage is recognized as a crucial period for mental health promotion, prevention, and the establishment of positive psychological behaviours (World Health Organization [WHO], 2024). Consequently, many countries have implemented targeted programs to address adolescent mental health challenges and enhance well-being (WHO, 2024). Furthermore, adolescence represents a critical developmental phase characterized by significant transitions and challenges that shape individuals' perceptions of daily life stressors (Tremolada *et al.* 2016). In particular, the strategies employed to navigate these challenges play a fundamental role in shaping cognitive processes and emotional well-being. Accordingly, the World Health Organization (WHO) defines adolescence as the developmental period spanning ages 10 to 19. Moreover, globally, approximately one in seven adolescents experiences a mental disorder (WHO, 2024).

Adolescents often exhibit heightened emotional reactivity alongside underdeveloped regulatory mechanisms, which, in turn, may contribute to increased engagement in risk-taking behaviours (Casey, 2015). Additionally, the adolescent brain demonstrates heightened sensitivity to both positive and negative stimuli, as well as to socioemotional contexts, while impulse control remains underdeveloped (Casey 2008). Moreover, effective emotion regulation is essential for adolescents' psychosocial adjustment, as it significantly influences social interactions, overall well-being, mental health outcomes, and behavioural patterns (Eichengreen *et al.* 2022; King *et al.* 2022; McRae *et al.* 2012; Nelis *et al.* 2011; Nolen-Hoeksema 2012; Zyberaj 2022). Specifically, deficits in emotion regulation may exacerbate psychological distress, increasing the risk of developing anxiety-related disorders. Anxiety, in general, is characterized by apprehension or uneasiness regarding anticipated events or potential threats (Kring 2005). Notably, anxiety disorders are among the most prevalent mental health conditions worldwide (Niermann 2021). In this context, Charles Spielberger (1966) introduced a conceptual framework distinguishing between trait anxiety and state anxiety. On the one hand, trait anxiety refers to a stable predisposition to respond with anxiety across various situations, reflecting an individual's general tendency to perceive circumstances as threatening. On the other hand, state anxiety is a temporary emotional condition characterized by feelings of apprehension, tension, and heightened autonomic nervous system activity, which fluctuates based on situational factors. This distinction is analogous to the difference between potential and kinetic energy, where trait anxiety represents a latent disposition, while state anxiety reflects its active manifestation in response to immediate stressors

(Spielberger 1966). According to Lazarus & Folkman (1984b), coping encompasses a set of dynamically employed cognitive and behavioural strategies designed to manage internal or external demands that exceed an individual's available resources. Specifically, Lazarus & Folkman (1984b) identified two primary coping strategies: problem-focused coping, which involves actively addressing stressors, and emotion-focused coping, which aims to regulate emotional responses to stress.

In the Moroccan context, adolescent mental health remains a pressing concern. Notably, approximately one in five adolescents is affected by a mental disorder, with the average age of onset being 14 years (Moroccan Ministry of Health, 2014; WHO, 2016). Furthermore, adolescents aged 15 to 19 constitute 8.9% of the total population, representing nearly three million individuals (High Commission for Planning [HCP], 2014). Moreover, a report by the Moroccan Ministry of Health (2014) reveals that nearly half of adolescents (48.9%) experience difficulties related to insomnia, anxiety, and/or depression. Given these considerations, the present study aims to examine psychological distress among adolescents in the public institutions of the Fés-Meknés region, Morocco, with a particular focus on the relationship between state-trait anxiety, coping strategies, and overall mental health outcomes. Furthermore, the findings may contribute to the promotion of positive mental health among adolescents. Overall, the study highlights that specific anxiety symptoms, particularly those related to state and trait anxiety, help identify qualitatively distinct profiles, raising important questions about the effectiveness of coping strategies used by adolescents with a specific anxious profile.

MATERIALS AND METHODS

Study Design and Setting

This study utilized a descriptive, analytical, and cross-sectional quantitative design conducted between February 9, 2024, and October 30, 2024. The research was carried out in public educational institutions within the Fés-Meknés region of Morocco,

Participants and Sampling

A total of 93 adolescents (boys = 61; girls = 32) were recruited using a convenience sampling method to ensure accessibility and feasibility. Participants were selected from public educational institutions in the study region, representing a diverse demographic of adolescents aged 10 to 17 years. The study included adolescents enrolled in public schools, with voluntary participation requiring informed consent from both the adolescents and their legal guardians. Exclusion criteria were applied to ensure methodological rigor. Adolescents who had previously participated in the questionnaire pre-testing phase were excluded to eliminate response bias. Additionally, those who declined to participate were not included in the study.

Tab. 1. Distribution of Gender Among Study Participants

Gender	Frequency	Percentage	Valid percentage	Cumulative percentage
Male	61	65.59	65.59	65.59
Female	32	34.41	34.41	100.0
Total	93	100.0	100.0	100.0

Measures

Data collection was conducted using two standardized psychological instruments: The Ways of Coping Checklist-Revised (WCC-R) developed by Lazarus & Folkman (1994) which assesses coping strategies, and the State-Trait Anxiety Inventory (STAI) developed by Spielberger (1966) which evaluates both trait anxiety (a long-term predisposition to anxiety) and state anxiety (a temporary emotional response to stress).

Confidentiality and Anonymity

To maintain participant confidentiality and anonymity, data were handled in compliance with data protection regulations and ethical research standards.

Ethical Considerations

Before data collection, ethical approval was obtained from the directors of public institutions where the study was conducted. Additionally, for minor participants, informed consent was secured from their parents or legal guardians to ensure compliance with ethical research standards and the protection of adolescent participants' rights.

Statistical Analysis

Data analysis was conducted using SPSS Statistics v29.0.2.0.

RESULTS

Descriptive Statistics

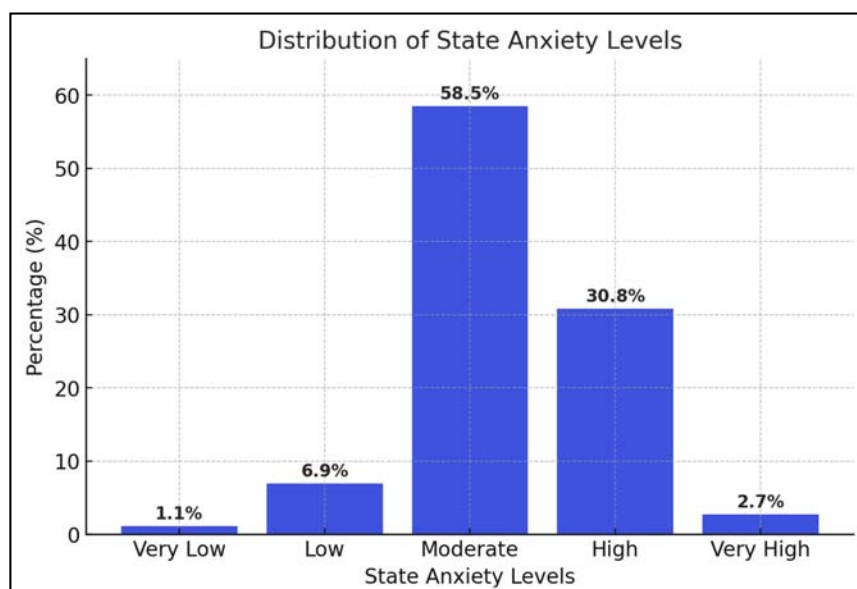
This study analyzed the age distribution of 93 adolescents from the Fés-Meknés region of Morocco, with no missing data, ensuring the accuracy and reliability of the findings. The mean age of participants was 14.2 years, with a median age of 14, indicating a relatively homogeneous distribution. The mode was 13 years, while the standard deviation ($SD = 2.23$) suggested moderate variation within the sample. The age range spanned from 10 to 17 years, enabling a comprehensive analysis of coping strategies and anxiety across different stages of adolescence.

Gender Distribution Analysis

The gender distribution among the 93 participants demonstrated a predominance of males within the sample (Table 1). Specifically, the sample comprised 61 males (65.59%) and 32 females (34.41%), resulting in a male-to-female ratio of 1.91:1. This ratio indicates that for approximately every two males, there was one female in the study population.

1. State Anxiety

Figure 1 presents a bar chart depicting the distribution of state anxiety levels across five categories: "Very Low," "Low," "Moderate," "High," and "Very High." The data are displayed in terms of absolute frequencies and

**Fig. 1.** Distribution of State Anxiety Levels Among Adolescents

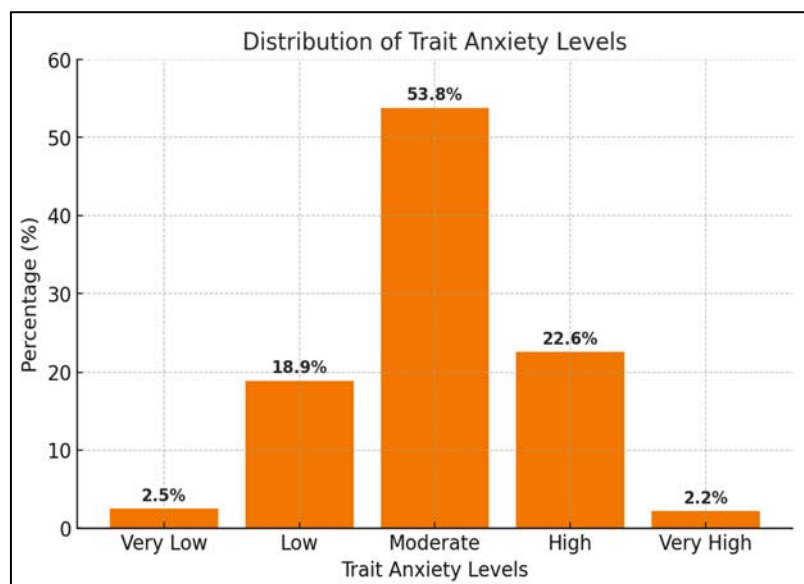


Fig. 2. Distribution of Trait Anxiety Levels Among Adolescents

corresponding percentages. The "Moderate" category accounts for the largest proportion of participants, representing 58.5% of the sample, followed by the "High" category at 30.8%. In contrast, lower frequencies are observed in the "Low" (6.9%), "Very High" (2.7%), and "Very Low" (1.1%) categories. This distribution suggests that the majority of participants' experience moderate to high levels of state anxiety, highlighting the prevalence of elevated anxiety among adolescents in the study population.

2. Trait Anxiety

Conversely, Figure 2 provides a comprehensive overview of the distribution of trait anxiety levels within the study population. Responses to the trait anxiety questionnaire were categorized into five levels, ranging from "Very Low" to "Very High." The majority of participants (53.8% of valid responses) fell within the "Moderate" category, indicating a prevalent mid-range level of trait anxiety. The "Low" (18.9%) and "High" (22.6%) categories also accounted for a considerable proportion of the responses. In contrast, the extreme categories—"Very Low" and "Very High"—were the least represented within the sample.

3. Coping Strategies

Descriptive Statistics

The analysis of descriptive statistics highlights distinct patterns in the coping strategies employed by participants. As illustrated in Figure 3, the mean score for problem-focused coping is 29.02, while emotion-focused coping exhibits a slightly higher average of 30.14. In contrast, support-focused coping demonstrates a comparatively lower mean of 21.40. These values, in conjunction with their respective standard deviations, indicate a moderate utilization of problem-solving and emotional coping strategies, whereas reliance on social support appears to be less prevalent.

4. Correlation between Coping Strategies and State-Trait Anxiety

The examination of correlations between state anxiety, trait anxiety, coping strategies, age, and gender provides valuable insights into the interplay between anxiety and coping mechanisms. The results, presented in Table 2, indicate significant relationships among these variables.

State anxiety demonstrates a positive correlation with trait anxiety ($r = 0.312, p < .001$) and emotion-focused coping ($r = 0.260, p < .001$). This suggests that individuals experiencing higher levels of anxiety are more likely to rely on emotional coping mechanisms. In addition, Trait anxiety is significantly correlated with emotion-focused coping ($r = 0.215, p = .002$) and negatively correlated with age ($r = -0.290, p < .001$). This indicates that younger individuals tend to report higher trait anxiety levels. Furthermore, Problem-focused coping does not show a significant correlation with trait or state anxiety but has a strong positive correlation with support-focused coping ($r = 0.455, p < .001$).

Support-focused coping is positively correlated with emotion-focused coping ($r = 0.209, p = .004$) and gender ($r = 0.201, p = .005$), suggesting potential gender differences in coping preferences.

DISCUSSION

To the best of our knowledge, this study represents the first comprehensive assessment of state-trait anxiety, coping mechanisms, and overall mental health among Moroccan adolescents in the Fés-Meknés region. The present study aimed to assess state and trait anxiety levels and coping strategies among adolescents in the Fés-Meknés region of Morocco. To examine these differences, a comparative research design was employed. The study utilized two standardized measures: The State-Trait Anxiety Inventory (STAI),

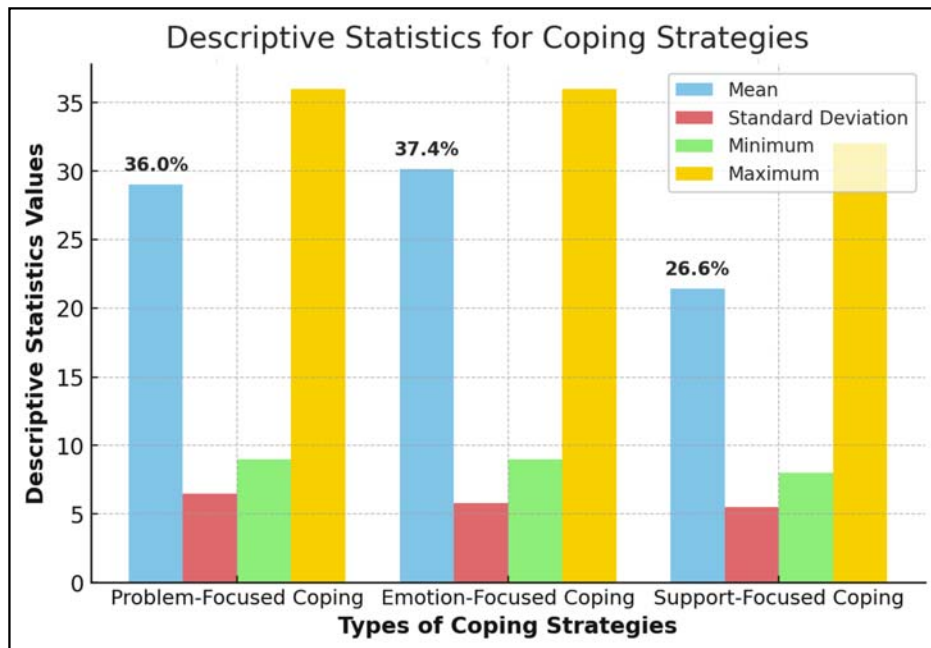


Fig. 3. Comparison of Descriptive Statistics for the different types of coping strategies

devised by Spielberger (1970), and the Ways of Coping Checklist-Revised (WCC-R), developed by Lazarus and Folkman (1985). The sample consisted of 93 adolescents, including 61 boys and 32 girls.

Psychological context of adolescent anxiety

Adolescence is a critical period for mental health development, during which various psychological disorders may emerge. Notably, psychotic disorders most commonly manifest during late adolescence or early adulthood (WHO, 2024). Our findings indicate that anxiety is highly prevalent among adolescents, with 58.5% reporting moderate state anxiety and 30.8% experiencing high levels. Similarly, 53.8% of adolescents reported moderate trait anxiety, while 22.6% exhibited high trait anxiety, suggesting a chronic predisposition to anxiety-related symptoms. Furthermore, the moderate positive correlation between state and trait anxiety ($r = 0.312$, $p < .001$) reinforces the relationship between situational and dispositional anxiety, indicating that higher chronic anxiety increases the likelihood of heightened situational anxiety responses. Furthermore, research by Zhou *et al.* (2020) indicates a progressive increase in depression and anxiety levels with advancing grade levels, suggesting that academic pressures and developmental transitions contribute significantly to psychological distress.

Middle adolescence, typically corresponding to high school years, represents a pivotal stage in identity formation and psychological adjustment. According to psychosocial development theory, this period is characterized by identity versus role confusion (Türk 2021). Additionally, the process of separation-individuation—a key developmental milestone during this stage—plays a crucial role in shaping adolescents' psychological

well-being (Çuhadaroğlu-Çetin 2006). These developmental changes may intensify anxiety levels, particularly among adolescents struggling to establish a sense of self and autonomy.

Coping Strategies and Gender Differences in Adolescent Mental Health

A comparison of state and trait anxiety among Moroccan adolescents in this study reveals that female participants exhibit significantly higher anxiety scores on standardized psychological assessments than their male counterparts. Consistent with prior research (Hankin 2009; Park *et al.* 2014; Ohannessian *et al.* 2017), female students demonstrated higher levels of psychological distress across all subscales of the Brief Symptom Inventory (BSI), except for hostility. This suggests that girls may be more vulnerable to mental health challenges compared to boys. These gender differences in anxiety and psychological distress can be attributed to both biological and environmental factors. Genetic predispositions specific to each gender have been suggested as potential contributors (Kang *et al.* 2011; Qin *et al.* 2016). Additionally, differential exposure to psychosocial and environmental risk factors may further explain these disparities (Biederman *et al.* 2002; Zahn-Waxler *et al.* 2008). In line with previous studies, these findings reinforce the notion that adolescent girls are at a heightened risk for anxiety-related symptoms (Mzadi 2022). Moreover, findings indicate that both male and female adolescents with internalizing and specific anxious profiles tend to use various coping strategies, except for behavioural avoidance (Olivier *et al.* 2022). This suggests that adolescents experiencing heightened anxiety may rely on multiple

Tab. 2. Pearson Correlations between Trait and State Anxiety, Coping Strategies, Age, and Gender

Correlations		State Anxiety	Trait Anxiety	PC	EC	SC	Age	Gender
State Anxiety	Pearson Correlation	1.0	0.312**	0.145	0.260**	0.182*	0.048	0.121
	Sig.	-	<.001	0.145	<.001	0.010	0.550	0.090
Trait Anxiety	Pearson Correlation	0.312**	1.0	0.012	0.215**	0.072	-0.290	0.028
	Sig.	<.001	-	0.940	.002	.320	<.001	.750
Problem-Focused Coping (PC)	Pearson Correlation	0.145	0.012	1.0	-0.025	0.455**	0.062	0.133
	Sig.	.045	.940	-	.630	<.001	.390	.065
Emotion-Focused Coping (EC)	Pearson Correlation	0.26	0.215**	-0.025	1.0	0.209**	0.175	0.097
	Sig.	<.001	.002	.630	-	.004	.007	.195
Support-Focused Coping (SC)	Pearson Correlation	0.182*	0.072	0.455	0.209**	1.0	0.135	0.201
	Sig.	.010	.320	<.001	.004	-	.060	.005
Age	Pearson Correlation	0.048	-0.29	0.062	0.175	0.135	1.0	0.124
	Sig.	.550	<.001	.390	.007	.060	-	.080
Gender	Pearson Correlation	0.121	0.028	0.133	0.097	0.201**	0.124	1.0
	Sig.	.090	.750	.065	.195	.005	.080	-

** . The correlation is significant at the 0.01 level (two-tailed).

*. The correlation is significant at the 0.05 level (two-tailed).

coping mechanisms to manage distress, although their effectiveness remains an area for further investigation.

The relationship between gender and coping strategies is well-documented in psychological research. The findings of Fatima and Tahir (2013) suggest that female adolescents are more likely to engage in active avoidance and religious-based coping strategies, including denial, whereas male adolescents predominantly utilize problem-focused and positive coping mechanisms. These gender differences in coping approaches highlight distinct stress management patterns between boys and girls, influencing how they respond to anxiety and psychological distress. Furthermore, our findings align with prior research indicating that females are significantly more likely to use support-focused coping than males ($r = 0.201, p = .005$). This is consistent with studies emphasizing gender differences in religious engagement, where women are more likely than men to seek religious support as a coping mechanism (Levitt, 1995). Similarly, Plancherel & Bolognini (1995) found that girls are more likely than boys to use religion as a coping strategy. Additionally, girls classified under the internalizing and specific anxious profiles reported more frequent use of four coping strategies compared to boys: social support, problem-solving, cognitive avoidance, and cognitive restructuring, (Olivier *et al.*

2022). This suggests that female adolescents adopt a broader range of coping mechanisms when managing psychological distress.

Anxiety and Coping Strategies

Findings from this study further reinforce the association between anxiety levels and coping strategies. Adolescents with higher state anxiety tend to rely more on emotion-focused coping ($r = 0.260, p < .001$) and seek social support ($r = 0.182, p = .010$). These results are in line with previous empirical research, such as Ejaz (2008), who identified a positive correlation between active avoidance coping strategies and anxiety. Additionally, problem-oriented coping was found to have a positive association with anxiety symptoms (Panzeri *et al.* 2024). Moreover, negative thinking and maladaptive coping were directly associated with anxiety, with negative thinking emerging as the strongest predictor of both maladaptive coping strategies and anxiety (Mahmoud *et al.* 2015). Research has demonstrated that cognitive coping strategies such as self-blame, rumination, and catastrophizing are positively correlated with anxiety symptoms in adolescents (Garnefski *et al.* 2001; Garnefski *et al.* 2002). The maladaptive application of cognitive coping strategies may play a role in both the onset and persistence of anxiety disorder.

ders (Legerstee *et al.* 2011). These findings underscore the critical role of cognitive patterns in the development and persistence of anxiety symptoms, suggesting that interventions should focus on promoting adaptive coping strategies to mitigate negative thought patterns. In addition, our findings indicate that emotion-focused coping (37.4%) was the most commonly used strategy, followed by problem-focused coping (36.0%). This suggests that adolescents predominantly regulate their emotions or actively seek solutions to their problems. In contrast, support-focused coping (26.6%) was the least utilized, indicating a preference for self-reliance over seeking external help. Furthermore, study of Brooks (2006) found that having both parents living together serves as a protective factor for adolescents, offering a crucial source of social support, underscoring the significance of family structure in adolescent mental health and highlights the buffering effects of parental presence in mitigating psychological distress. While coping mechanisms play a vital role in managing stress and anxiety, research has also examined their associated risks. Studies indicate that both avoidant strategies (e.g., behavioural disengagement; Horwitz *et al.* 2011) and approach-oriented strategies (e.g., seeking social support; Cicognani 2011) have implications for mental health outcomes. While avoidant strategies may contribute to long-term distress, even approach strategies can vary in effectiveness depending on individual and contextual factors.

Strengths and Limitations

This study provides valuable insights into adolescent anxiety and coping strategies in the Fés-Meknés region, a geographical area where research on adolescent mental health remains limited. By employing validated psychological instruments, namely the Ways of Coping Checklist-Revised (WCC-R) and the State-Trait Anxiety Inventory (STAI), this study ensures reliable and standardized assessment of both coping strategies and anxiety levels. Furthermore, gender-based differences in anxiety and coping mechanisms were explored, offering important implications for mental health interventions tailored to adolescents' specific needs.

In addition, this study has several limitations that should be acknowledged. Firstly, the sample size ($N = 93$) is relatively small, which may limit the generalizability of the findings to the broader adolescent population in Fés-Meknés and Morocco as a whole. Secondly, the assessment of coping strategies and state-trait anxiety relied on self-reported measures, which may have introduced response bias, as participants could overestimate or underestimate their anxiety levels and coping mechanisms. Additionally, adolescents with higher anxiety levels may exhibit different response tendencies, potentially influencing the survey outcomes. Furthermore, the effectiveness of coping strategies in adolescents with anxiety may be influenced by their exposure to specific negative life events,

suggesting that personal experiences shape coping mechanisms. Moreover, the cross-sectional nature of this study prevents the establishment of causal relationships between anxiety and coping mechanisms, thereby limiting the ability to determine how these factors interact over time. To address these limitations, future research should incorporate larger and more diverse samples and adopt longitudinal designs to examine the long-term development of adolescent anxiety and coping strategies.

CONCLUSION

Despite its limitations, this study allows for three key conclusions. Firstly, anxiety levels in adolescents tend to be elevated, with female adolescents exhibiting significantly higher levels of anxiety compared to males. This gender disparity is particularly noteworthy, emphasizing the need for gender-sensitive approaches to anxiety management. Secondly, coping strategies play a crucial role in how adolescents manage anxiety, but their effectiveness varies across individuals. Notably, the use of coping mechanisms differs between boys and girls, with females predominantly relying on emotion-focused coping strategies. This finding underscores the importance of exploring adaptive coping mechanisms to mitigate anxiety symptoms effectively. Lastly, state anxiety has a significant impact on trait anxiety, suggesting that situational stressors contribute to the development and persistence of chronic anxiety symptoms. This highlights the interconnected nature of anxiety types and the importance of early interventions to prevent long-term psychological distress. Further research on coping strategies in adolescents with anxiety could provide valuable insights into both the scientific understanding of anxiety disorders and the development of effective psychotherapeutic interventions. Moreover, these findings highlight the necessity for continued exploration of adolescent anxiety and coping mechanisms to inform targeted psychological interventions that address gender differences and long-term mental health outcomes.

REFERENCES

- 1 Biederman, J., Faraone, S. V., & Monuteaux, M. C. (2002). Differential effect of environmental adversity by gender: Rutter's index of adversity in a group of boys and girls with and without ADHD. *American Journal of Psychiatry*. **159**(9): 1556–1562. <https://doi.org/10.1176/appi.ajp.159.9.1556>
- 2 Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The adolescent brain. *Annals of the New York Academy of Sciences*. **1124**(1): 111–126. <https://doi.org/10.1196/annals.1440.010>
- 3 Casey, B. J. (2015). Beyond simple models of self-control to circuit-based accounts of adolescent behavior. *Annual Review of Psychology*. **66**(1): 295–319. <https://doi.org/10.1146/annurev-psych-010814-015156>

- 4 Cicognani, E. (2011). Coping strategies with minor stressors in adolescence: Relationships with social support, self-efficacy, and psychological well-being. *Journal of Applied Social Psychology*. **41**(3): 559–578. <https://doi.org/10.1111/j.1559-1816.2011.00726.x>
- 5 Çuhadaroglu-Çetin, F. (2006). Psychosocial developmental characteristics in adolescence. *Türkiye Klinikleri Pediatric Sciences - Special Topics*. **2**(7): 6–8.
- 6 Eichengreen, A., Broekhof, E., Tsou, Y.-T., & Rieffe, C. (2022). Longitudinal effects of emotion awareness and regulation on mental health symptoms in adolescents with and without hearing loss. *European Child & Adolescent Psychiatry*. **32**(4): 705–724. <https://doi.org/10.1007/s00787-021-01900-9>
- 7 Ejaz, F. (2008). The relationship between test anxiety and coping strategies among college students. Unpublished M.Sc Thesis, National Institute of Psychology, Quaid-i-Azam University, Islamabad.
- 8 Fatima, S., & Tahir, S. (2013). Comparison of coping strategies used by adolescents on state and trait anxiety. *FWU Journal of Social Sciences*. **7**(2): 165–174.
- 9 Hankin, B. L. (2009). Development of sex differences in depressive and co-occurring anxious symptoms during adolescence: Descriptive trajectories and potential explanations in a multiwave prospective study. *Journal of Clinical Child & Adolescent Psychology*. **38**(4): 460–472. <https://doi.org/10.1080/15374410902976288>
- 10 High Commission for Planning (HCP). (2014). Démographie-Maroc. Retrieved March 21, 2016, from <https://rgphentableaux.hcp.ma/Default1/>
- 11 Horwitz, A. G., Hill, R. M., & King, C. A. (2011). Specific coping behaviors in relation to adolescent depression and suicidal ideation. *Journal of Adolescence*. **34**(5): 1077–1085. <https://doi.org/10.1016/j.adolescence.2010.10.004>
- 12 Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation, and emotional problems. *Personality and Individual Differences*. **30**(8): 1311–1327. [https://doi.org/10.1016/S0191-8869\(00\)00113-6](https://doi.org/10.1016/S0191-8869(00)00113-6)
- 13 Garnefski, N., Legerstee, J., Kraaij, V., van den Kommer, T., & Teerds, J. (2002). Cognitive coping strategies and symptoms of depression and anxiety: A comparison between adolescents and adults. *Journal of Adolescence*. **25**(6): 603–611. <https://doi.org/10.1006/jado.2002.0507>
- 14 Kang, H. J., Kawasawa, Y. I., Cheng, F., Zhu, Y., Xu, X., Li, M., et al. (2011). Spatio-temporal transcriptome of the human brain. *Nature*. **478**: 483–489. <https://doi.org/10.1038/nature10523>
- 15 King, S. A., Hubbard, S. M., Teeters, J. B., & Brausch, A. M. (2022). A longitudinal examination of alcohol use and emotion dysregulation in adolescence. *Experimental and Clinical Psychopharmacology*. **31**(2): 414–422. <https://doi.org/10.1037/pha0000624>
- 16 Kring, A. M., Davison, G. C., Neale, J. N., & Johnson, S. L. (2005). *Abnormal psychology* (10th ed.). John Wiley & Sons.
- 17 Legerstee, J. S., Garnefski, N., Verhulst, F. C., & Utens, E. M. W. J. (2011). Cognitive coping in anxiety-disordered adolescents. *Journal of Adolescence*. **34**(2): 319–326. <https://doi.org/10.1016/j.adolescence.2010.04.008>
- 18 Lazarus, R., & Folkman, S. (1984b). *Stress, Appraisal, and Coping*. New York: Springer.
- 19 Levitt, M. (1995). Sexual identity and religious socialization. *British Journal of Sociology*. **46**(3): 529–536. Retrieved Oct 18th, 2009, from <http://www.downsyndrome.org/reports/132/>
- 20 Mahmoud, J. S. R., Staten, R. T., Lennie, T. A., & Hall, L. A. (2015). The relationships of coping, negative thinking, life satisfaction, social support, and selected demographics with anxiety of young adult college students. *Journal of Child and Adolescent Psychiatric Nursing*. **28**(2): 97–108. <https://doi.org/10.1111/jcap.12109>
- 21 McRae, K., Jacobs, S. E., Ray, R. D., John, O. P., & Gross, J. J. (2012). Individual differences in reappraisal ability: Links to reappraisal frequency, well-being, and cognitive control. *Journal of Research in Personality*. **46**(1): 2–7. <https://doi.org/10.1016/j.jrp.2011.10.003>
- 22 Moroccan Ministry of Health. (2014). The 2nd National Meeting on School and University Health and the Promotion of Youth Health. Retrieved September 16, 2021, from <https://www.sante.gov.ma/Documents/Actualites/disscours-03-2014fr.pdf>
- 23 Mzadi, A. E., Zouini, B., Kerekes, N., & Senhaji, M. (2022). Mental health profiles in a sample of Moroccan high school students: Comparison before and during the COVID-19 pandemic. *Frontiers in Psychiatry*. **12**: 752539. <https://doi.org/10.3389/fpsyt.2021.752539>
- 24 Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion (Washington, D.C.)*. **11**(2): 354–366. <https://doi.org/10.1037/a0021554>
- 25 Niermann, H. C. M., Voss, C., Pieper, L., Venz, J., Ollmann, T. M., & Beesdo-Baum, K. (2021). Anxiety disorders among adolescents and young adults: Prevalence and mental health care service utilization in a regional epidemiological study in Germany. *Journal of Anxiety Disorders*. **84**: 102453. <https://doi.org/10.1016/j.janxdis.2021.102453>
- 26 Nolen-Hoeksema, S. (2012). Emotion regulation and psychopathology: The role of gender. *Annual Review of Clinical Psychology*. **8**(1): 161–187. <https://doi.org/10.1146/annurev-clinpsy-032511-143109>
- 27 Ohannessian, C. M., Milan, S., & Vannucci, A. (2017). Gender differences in anxiety trajectories from middle to late adolescence. *Journal of Youth and Adolescence*. **46**(4): 826–839. <https://doi.org/10.1007/s10964-016-0619-z>
- 28 Olivier, E., Morin, A. J. S., & Tardif-Grenier, K. (2022). Profiles of anxious and depressive symptoms among adolescent boys and girls: Associations with coping strategies. *Journal of Youth and Adolescence*. **51**(4): 570–584. <https://doi.org/10.1007/s10964-022-01572-x>
- 29 Panzeri, A., Bottesi, G., Ghisi, M., Scalavici, C., Spoto, A., Vidotto, G. (2024). Emotional Regulation, Coping, and Resilience in Informal Caregivers: A Network Analysis Approach. *Behav. Sci.* **14**: 709. <https://doi.org/10.3390/bs14080709>
- 30 Park, J. H., Bang, Y. R., & Kim, C. K. (2014). Sex and age differences in psychiatric disorders among children and adolescents: High-risk students study. *Psychiatry Investigation*. **11**(3): 251–257. <https://doi.org/10.4306/pi.2014.11.3.251>
- 31 Plancherel, B., & Bolognini, M. (1995). Coping and mental health in early adolescence. *Journal of Adolescence*. **18**(4): 459–474. Retrieved Oct 18th, 2009 from <http://www.down-syndrome.org/reports/132/>
- 32 Qin, W., Liu, C., Sodhi, M., & Lu, H. (2016). Meta-analysis of sex differences in gene expression in schizophrenia. *BMC Systems Biology*. **10**(Suppl 1): 9. <https://doi.org/10.1186/s12918-016-0252-2>
- 33 Spielberger, C. D. (1966). The Effects of Anxiety on Complex Learning and Academic Achievement. *Anxiety and Behavior*. 361–398. doi:10.1016/b978-1-4832-3131-0.50019-6
- 34 Tremolada, M., Bonichini, S., & Taverna, L. (2016). Coping Strategies and Perceived Support in Adolescents and Young Adults: Predictive Model of Self-Reported Cognitive and Mood Problems. *Psychology*. **7**: 1858–1871. <http://dx.doi.org/10.4236/psych.2016.714171>
- 35 Türk, F., Kul, A., & Kiliç, E. (2021). Depression-anxiety and coping strategies of adolescents during the Covid-19 pandemic. *Turkish Journal of Education*. **10**(2): 58–75. <https://doi.org/10.19128/turje.814621>
- 36 World Health Organization. (2024, October 10). Mental health of adolescents. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
- 37 World Health Organization (WHO). (2016). Cooperation strategy: WHO-Morocco 2017–2021. Retrieved September 16, 2021, from https://extranet.who.int/iris/restricted/bitstream/10665/254588/5/CCS_Maroc_2016_fr_19364.pdf?ua=1
- 38 Zahn-Waxler, C., Shirtcliff, E. A., & Marceau, K. (2008). Disorders of childhood and adolescence: Gender and psychopathology. *Annual Review of Clinical Psychology*. **4**: 275–303. <https://doi.org/10.1146/annurev.clinpsy.3.022806.091358>
- 39 Zyberaj, J. (2022). Investigating the relationship between emotion regulation strategies and self-efficacy beliefs among adolescents: Implications for academic achievement. *Psychology in the Schools*. **59**: 1556–1569. <https://doi.org/10.1002/pits.22701>