

Association between Health-Related Quality of Life, Mental Health and Academic Performance among Adolescent Students

Zeinab Hassan Hassan Osman¹, Enaam Abdellatif Farrag Hamza², Fatma Mohamed Amin³, Lamia Amin Salama⁴, Nadia Ahmed Eladham⁵.

^{1,2}Assistant professor of Psychiatric Mental Health Nursing, Faculty of Nursing, Fayoum University, Egypt

³Assistant Professor of Pediatric Nursing, Faculty of Nursing, Mansoura University, Egypt.

⁴Professor of Community Health Nursing, Faculty of Nursing, Mansoura University, Egypt.

⁵Assistant Professor of Community Health Nursing, Faculty of Nursing, Fayoum University, Egypt.

Abstract:

Background: Mental health and health-related quality of life (QOL) are strictly related. Scientific interest in student's mental health experiences has been increasing in the last years due to their influence on students' learning processes and academic performance. **Aim:** Assess the association between quality of life, mental health and Academic performance among adolescent students. **Subjects & Methods:** This cross-sectional study was conducted on adolescent student's schools (prep and secondary schools) during the academic year 2022-2023, at Mansoura city, Dakhliya Governorate. **Sample:** A convenience sample of 665 students over a period of three months was included. **Tools:** Four tools were used to collect data: **Part I:** Characteristics of studied adolescent students **Part II:** Academic quality of life student scale **Part III:** Mental health symptom Checklist-90. **Part IV:** Academic Performance Rating Scale. **Results:** 74% of studied students had low quality of life, while 26% had high quality and 50.9% of studied students had low mental health and 23.3% of them had moderate mental health. Also, 60% of studied students had high academic performance, while 20.3% of them had low academic performance. **Conclusion:** There was high negative correlation between students' Academic performance and mental health Also, high negative correlation between students' Mental health and quality of life While there was high positive relation between students' Quality of life and Academic performance **Recommendation:** Health education and promotion of quality of life should be integrated into the educational strategies and policies of all educational centers.

Key words: Academic performance, Adolescent students, Mental health, Quality of life.

Introduction

Issues related to mental health are often propagated in mass media in recent years not only in a country and even around the world. Mental health is a way of thinking, feeling and behavior in a person's daily lives. A person with a healthy mental health can recognize himself on the ability, willing to accept failure, able to control the emotions and appreciate self. Mental health may deteriorate, and its negative

effects will affect the daily lives without treatment⁽¹⁾.

Mental health is defined as a state of harmony among emotional, social, and psychological well-being⁽²⁾. World Health Organization defined mental health as a state of well-being in which individuals use their potentials to perform their duties properly, use the coping skills to deal with the stressors of life, and become an influential member of his community.

Hence, mental health is not merely the absence of mental illness. World Health Organization (2012) estimated that in a year, one out of four adolescents aged 12 to 24 suffers from a mental health problem such as depression and schizophrenia⁽³⁾.

Mental health is considered as one of the main criteria used to evaluate public health. Mental health is defined as subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, self-actualization of one's intellectual and emotional potential, etc. Moreover, according to the World Health Organization, mental health is achieved when a person has a complete state of physical, mental, and social well-being. Mental health plays an important role in dynamism and efficiency of every community⁽⁴⁾.

Mental health issues often occur among students and create a negative impact on students. The literature widely recognized that students who had mental difficulties or disabilities, either treated or untreated, experience lower grade point average (GPAs) and more drop out than other students⁽⁵⁾.

Students with mental health problems have a higher probability of developing a life-long mental disorder due to delays in acquiring the required skill for a successful life⁽⁶⁾.

Most of the research related to adolescent students pay attention to mental disorders, not mental problems, as adolescent life is a transitory time where many students experience mental issues that do not meet the full mental illness criteria⁽⁷⁾.

Relationship between mental health and academic performance of students has

been investigated for a long time, but information on this relationship is still controversial. Most studies have reported an inverse association between mental health and academic performance⁽⁸⁾.

Health related quality of life (HRQoL) is a subjective concept frequently applied to describe people's physical, mental, social, psychological, and functional aspects of health. Healthy behaviors are associated with academic achievement in adolescents, which suggests that practicing unhealthy lifestyles might lower cognitive function and, in turn, the likelihood of succeeding in school. Investigating health-related quality of life (QOL) is used to predict health care needs for identifying the most important dimensions of children's health that are at risk, or for identifying children in need of support in the early stages of life⁽⁹⁾.

Several factors affect the QOL and the academic achievement of adolescents, including religion, social relationships, social participation, and mother-child attachment. Among these factors, the mother's employment, due to its growing growth, needs to be further explored. During adolescence, many behaviors affecting the health and lifestyle of individuals are shaped; attitudes and behaviors shaped during adolescence determine the healthy lifestyle habits of adulthood⁽⁶⁾.

QOL of students can predict children with potential problematic behavior and help to identify those who need help from mental health agencies. Psychological, emotional, and social domains of QOL were shown to be related to a level of anxiety of students. In adolescents with high anxiety level,

poor QOL was constated in all QOL domains (10)

Significance of the study:

Students' lack of personal effect and time is also one reason for not seeking mental health support. They have a perception of not enough time for themselves. Students are not taught management skills in school and college life that is why they are not able to cope with the independence and autonomy, which resulted in mental health problems. Another problem is the knowledge of having a support system and help. The students, who identify their problems and overcome their fear of stigmatization, usually do not have the experience about support availability⁽¹¹⁾.

Therefore, mental health problems can lead to the loss of adolescents' students' ability to perform routine tasks, the loss of social coexistence, and decreased QoL. The high prevalence of depressive symptoms in high school and university students is a matter of concern, because it negatively interferes with learning, and academic success⁽¹²⁾, and contributes to the increase in the global disease burden.

The assessment of QoL is important for a broader understanding of the nature of the diseases to which individuals are exposed. Little is known about the relationship between QoL and mental health in high school students, especially when considering the different domains of QoL (13). Thus, this study aimed to assess the association between quality of life, mental health and Academic performance among adolescent students.

Aim of the study:

To assess the association between quality of life, mental health and Academic performance among adolescent students.

Research questions

To fulfill the aim of this study the following research questions are formulated:

Q1: What is the level of quality of life among adolescent students?

Q2: What is the level of mental health among adolescent students?

Q3: What is the level of academic performance among adolescent students?

Q4: Is there association between quality of life, mental health and academic performance among adolescent students?

Subjects and Methods

Research design:

A cross-sectional study design was utilized to accomplish the aim of this study.

Setting:

This study carried out during the period of from first of January to the end of March 2023, at Mansoura, the capital of Dakahlia Governorate, Egypt, which is located on the Nile River in the northeastern region of the Delta. The study was conducted among preparatory and secondary schools' students enrolled in public schools.

Preparatory and secondary schools in both educational zones (eastern and western zones) of Mansoura city as well as the rural sector were included. Four public preparatory and secondary schools were randomly selected, one preparatory school for girls and one for boys from each zone of an urban and rural sectors (i.e., four schools, one preparatory and one secondary school from the urban sector and the other two preparatory and secondary schools from the rural sector).

Sample:

The sample size was calculated the MedCalc software program using ([www.medcalc.org/ index.php](http://www.medcalc.org/index.php)) at 5% α

error (95% significance) and 20% β error (80% power of the study), this distribution covered all social strata of both sexes, and both urban and rural sectors of the community. From each selected school, one class (cluster) from each grade was randomly selected. The response rate in this study was 89.3%, where 665 students participated in the study out of the total registered 745 students in these classes. The others were either absent (8.0%), refused to complete the questionnaire (2.5%), or excluded from the study due to neuropsychiatric disorder (0.7%). With the consent of the school authorities, the investigators spent 45–60 min in each class. Students were briefed about the study and were encouraged to participate and to express their experiences. It was emphasized that all collected data would be strictly confidential, and the students should give fully informed verbal consent to participate.

Tools of Data Collection

Structure Questionnaire Sheet consists of four parts as the following:

Part I: Demographic characteristics of studied adolescents' students: included age, residence, stage, number of siblings, and income.

Part II: Academic quality of life scale:

It was developed by **Pedro et al., (2016)**⁽¹⁴⁾ was used to assess a student's perception of own QoL. It included 62 items under two main domains, namely general and self. The general "domain involved 4 dimensions as following. The health and healthy environment dimension had 10 items such as "I feel active and vital" and "I care for the cleanliness of my surrounding environment". The family environment dimension had 11 items such

as "I have a good standard of living" and "I have difficulty communicating with my parents". The school environment dimension had 10 items such as "There is good transportation to the school" and "I suffer discrimination at the school". The social/emotional dimension 11 items such as "My friends and neighbors like me" and "I get support from my family". The "self" domain had two dimensions, namely mental wellbeing, and psychological QOL. The mental wellbeing dimension had 10 items such as "I feel comfortable at school" and "I enjoy my life". The psychological QOL dimension had 10 items such as "I feel lonely" and "I do not easily cope with new matters

Scoring system: The items were on a 3-point Likert scale Yes, Sometimes, and No. These were scored 2, 1 and zero. The scoring was reversed for negative items so that a higher score indicates better QoL. For each dimension and domain and the total scale, the scores of the items were summed-up and the total divided by the number of items giving a mean score for the part. These scores were converted into percent scores. The student's QoL was considered high if the percent score was 60% or more and low if less than 60%.

Part III: Mental health Symptom Checklist-90 (SCL90)

The Symptom Checklist-90 (SCL90) is a 90-item questionnaire used to assess psychological problems. It adapted from **Wei et al., (2018)**⁽¹⁵⁾ and included physical health, (11) items Depression (12) items, aggression (6) items, Anxiety (10) items, phobia (7) items, sensitive (9) items, paranoid (6) items, psychosis (10) items.

Scoring system: Each item is scored on a scale from 0 to 4 based on how much an

individual was bothered by each item in the last week: 0 = Not at all, 1 = A little bit, 2 = Moderately, 3 = Quite a bit 4 = Extremely. The total was categorized by severe >66%, moderate 33 to 66% and low if score <0.33%, and None if score 0.

Part IV: Academic performance of adolescents' students:

Academic Performance Rating Scale was adapted from **DePaul et al., (1991)** ⁽¹⁶⁾, it included 19 items distributed on three domains as academic success (6 items), academic productivity (10 items), and Impulse control (3 items).

Scoring system: Each item is scored on a scale from 0 to 4 based on how much an individual was bothered by each item in the last week: 0 = Not at all, 1 = A little bit, 2 = Moderately, 3 = Quite a bit 4 = Extremely. The total was categorized by high >70%, moderate 50 to 70% and low if score <0.50%.

Validity and Reliability:

Five experts in the psychiatric nursing, community health and pediatric nursing ascertained the content's validity; their opinions were elicited regarding the format, layout, consistency, accuracy, and relevancy of the tools. The validity was depended on research data and expert clinical judgments and its reliability tested resulting Cronbach's α for quality of life as good (.0.857), mental health Symptom emerged as good (.0.826), academic performance scale emerged as excellent (.0.913).

Pilot study

It was carried out on 10% of the sample (67 preparatory and secondary students) who were included in the main study sample. It was conducted to test the study process, evaluate the applicability, and test

the content clarity, the feasibility and the time needed to fill in the tools. Consequently, minor adjustments were made, and the pilot research sample was not incorporated in the study.

Fieldwork:

Researchers explain purpose, aim, and tools of data collection and process of the study to the students. A review of recent national and international related literature using journals, periodicals, textbooks, internet, and theoretical knowledge of the various aspects concerning the topic of the study. Preparation of data collection tools was carried out over a period of three months from first of January to the end of March 2023; the researchers prepared the tools and translated them into Arabic form to become ready for use.

The questionnaire used in the study was administered in classrooms under the guidance of the researchers. Students were briefed about the study, encouraged to participate and motivated to express their experiences. The students give fully informed verbal consent to participate. It was emphasized that all data collected was strictly confidential. Efforts were made to minimize under-reporting, strongly emphasizing to the student that the questionnaire was anonymous, and that the data would be used for scientific purposes only. The questionnaires were distributed and recollected in the same setting. The time required to fill the questionnaires sheet was from 20 to 25 minutes. The filled forms were collected in time and revised to check their completeness to avoid any missing data.

Ethical Considerations:

The researcher obtained ethical approval from the Research Ethics Committee,

Faculty of Nursing, and Mansoura University. As well, the researcher obtained another approval from the participants. The researcher was introduced herself and a simple explanation about the aim of the study was provided to them. They were assured that their participation in the study was voluntary, that collected data was treated confidentially. Participants were informed that they have the right to ask any question related to the study and withdraw at any time from the study without any responsibility, and without giving any reason.

Statistical Analysis:

Data was sorted, classified, and the results were shown in tables. The Statistical Package for the Social Sciences was used to analyze the data on a suitable personal computer (SPSS Inc; version 21; IBM Corp., Armonk, NY, USA). The one-sample Kolmogorov–Smirnov test was used to determine the data's normality. Numbers and percentages were used to describe quantitative data. Continuous variables were presented as means \pm standard deviation. Pearson correlation coefficient was used to measure of linear correlation between two sets of data. A linear regression model is a linear approach to modeling the relationship between a scalar response and one or more explanatory variables. The results were considered significant when the probability of error is less than 5% ($p < 0.05$) and highly significant when the probability of error is less than 0.1% ($p < 0.01$).

Results:

Table (1) presented that the mean age and standard deviation were determined to be

13.947 \pm 1.825 years. Of this cohort, over 54.4% of the students were identified as female, and 60% of them were found to reside in rural areas. It was observed that a considerable proportion of the cohort, specifically 69.2%, was enrolled in preparatory school. Additionally, more than half of the students, (56.7%) reported sufficient income.

Table (2) revealed that 65.4% and 57.6% of studied students had high quality of health and a healthy environment and school quality of life. While, 71%, 85.9%, and 86.8% of studied students had low Quality family environment, quality of subjective life, and psychological quality of life, respectively. Additionally, 74% of studied students had low quality of life, while 26% had high quality of life.

Table (3) detected that 57.1% of studied students had low somatization and 29.3% of them had moderate obsessive-compulsive. In addition, 28.7% of studied students had moderate anxiety, 53.1% of them had low depression. According to total mental health, 50.9% of studied students had low mental health and 23.3% of them had moderate mental health.

Table (4) showed that 70.2% of studied subjects had high academic success, 41.9% of them had high impulse control, and 67.8% of studied subjects had high academic productivity. According to total academic performance, 60% of studied subjects had high academic performance, while 20.3% of them had low academic performance.

Table (5) stated that high significant model detected through F test value was 6.998 with p value. 007. This model explained 39% of the variation in total mental health detected through R2 value

0.390. Also, explained that gender and number of siblings had no effect on mental health at p value >0.05 . While, stage and age had slight negative effect on mental health at p value <0.05 .

Table (6) showed that there was high negative correlation between anxiety level and quality life at p value <0.01 . Also, there was high negative correlation between obsessive-compulsive and total mental health with quality of life at p value <0.01 . Additionally, there was high negative correlation between somatization,

conduct disorder and total mental health with academic performance at p value $<0.01^{**}$.

Table (7): Revealed that there was high negative correlation between Academic performance and mental health at p value <0.01 . Also, high negative correlation between Mental health and quality of life at p value <0.01 . While there was high positive relation between Quality of life and Academic performance at p value <0.01 .

Table (1): Distributions of the studied students according to their demographic characteristics (n=665).

Variables	N	%
Stage		
Preparatory school	460	69.2
Secondary school	205	30.8
Gender		
Male	303	45.6
Female	362	54.4
Age group		
12- 15 years	502	75.5
16-18 years	163	24.5
Mean SD	13.947±1.825	
Number of siblings		
The first and the second	321	48.3
The third - and the fourth	263	39.5
Fifth - and more	81	12.2
Residence		
Rural	399	60.0
Urban	266	40.0
Income		

Table (2): Distribution of quality-of-Life Items among studied student (n=665).

Variables	High quality		Low quality	
	N	%	N	%
Quality of health and a healthy environment	435	65.4	230	34.6
Quality family environment	193	29.0	472	71.0
School quality of life	383	57.6	282	42.4
psychological satisfaction	319	48.0	346	52.0

quality of subjective life	94	14.1	571	85.9
Psychological quality of life	88	13.2	577	86.8
Total quality of life	173	26.0	492	74.0

Table (3): Distribution of studied students according to their mental health (n=665).

Mental health	N	%
Somatization:		
Severe	40	6
Moderate	155	23.3
Low	380	57.1
None	90	13.6
Obsessive-compulsive:		
Severe	78	11.7
Moderate	195	29.3
Low	297	44.7
None	95	14.3
Anxiety:		
Severe	46	6.9
Moderate	191	28.7
Low	326	49
None	102	15.4
Depression:		
Severe	20	3
Moderate	83	12.5
Low	353	53.1
None	209	31.4
Interpersonal sensibility:		
Severe	48	7.2
Moderate	190	28.7
Low	240	36.9
None	187	28.2
Anger-hostility:		
Severe	39	5.9
Moderate	78	11.7
Low	343	51.6
None	205	30.8
Phobic anxiety:		
Severe	42	6.3
Moderate	70	10.5
Low	352	52.9
None	201	30.3
Paranoid ideation:		
Severe	29	4.4
Moderate	68	10.2
Low	120	18
None	448	67.4
Psychoticism:		
Severe	18	2.8
Moderate	34	5.1
Low	76	11.4
None	537	80.7

Total:		
Severe	47	7.1
Moderate	155	23.3
Low	339	50.9
None	124	18.7

Table (4): Distribution of studied students regarding their academic performance (n=665).

Domains	N	%
Academic success		
High	467	70.2
Moderate	93	13.9
Low	105	15.9
Impulse control		
High	279	41.9
Moderate	190	28.6
Low	196	29.5
Academic productivity		
High	451	67.8
Moderate	105	15.8
Low	109	16.4
Total academic performance		
High	399	60
Moderate	131	19.7
Low	135	20.3

Table (5): Multiple Linear regression model for total mental health among studied students (n=665).

	Unstandardized Coefficients	Standardized Coefficients	T	P. value
	B	B		
Gender	.242	.055	.952	.342
Stage	-.661	.228	2.908	.011*
Number of siblings	-0.346	-.055	-1.174	.241
Age	-0.335	0.106	2.528	.012*
Model				
Regression	0.390	3	6.998	.007**

- a. Dependent Variable: **Total mental health**
 b. Predictors: (constant): Gender, Stage, Number of siblings, and Age.

Table (6): Correlation between quality of life, academic performance and mental health among studied students (n=665).

All items of mental health		Quality of life	Academic performance
Depression	r.	.047	-.002
	p. value	.229	.962
Anxiety	r.	-.104**	-.025
	p. value	.007	.523
Somatization	r.	-.078*	-.106**
	p. value	.044	.006
Obsessive-compulsive	r.	-.163**	.153**
	p. value	.000	.000
Total Mental health	r.	-.107**	.187**
	p. value	.006	.000

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

Table (7): Correlation matrix between quality of life, mental health and academic performance among studied students (n=665).

Correlations				
		Quality of life	Academic Performance	Mental health
Quality of life	R.	1	.345**	-.307**
	P. Value		.006	.006
Academic performance	R.	.345**	1	.487**
	P. Value	.006		.000
Mental health	R.	-.307**	-.487**	1
	P. Value	.006	.000	

Discussion:

Mental health problems of adolescents have an important influence on their schooling, particularly their academic achievement, which in turn may create important lifelong consequences. Due to a growing interest in mental health of adolescents in recent years, a meta-analysis seems timely, not only to demonstrate the association between mental

health and academic achievement, but also to identify moderators that should be articulated in more depth in future research. Although there is a body of research on the relationship between mental health and academic achievement across the world, the literature is missing a meta-analysis of this relationship **Cavioni et al., (2021)**⁽¹⁷⁾, so the current study aimed to explore relation

between quality of life and mental health on academic performance among adolescents' students.

Regarding to characteristics of studied students, the mean age and standard deviation were determined to be 13.947 ± 1.825 years. More than half of the students were female, and from rural areas. Also, more than two thirds of them were enrolled in preparatory school. Additionally, more than half of the students had sufficient income. These results supported with the study conducted by **Jiang et al., (2023)**⁽¹⁸⁾ titled in association of emotional and behavioral problems with sleep disturbance among Chinese adolescents: The moderation effect of academic performance, who stated that the mean age was 14.8 (SD: 1.7) years. Also, cohort with the study by **Qi et al., (2020)**⁽¹⁹⁾ titled in Association of academic performance, general health with health-related quality of life in primary and high school students in China, who reported that the mean (SD) age was 13.9 (2.5) years and half of them were girls. More participants resided in rural areas.

According to academic quality of life, the current study mentioned that more than half of studied students had high quality of health and a healthy environment and school quality of life. While the majority of studied students had low quality of subjective life, and psychological quality of life, respectively. Additionally, about three quarters of studied students had low academic quality of life, while one quarter had high academic quality of life. These results may be due to school problems are common in the pre-teen and teenage years and school problems include lack of

engagement, poor results, lack of confidence, problems with peers and so on.

These results inconsistent with the study by **Hidalgo-Rasmussen et al., (2018)**⁽²⁰⁾ about Bullying and health-related quality of life in children and adolescent Mexican students, who stated that the majority of studied student had high quality of life. While, supported with the study by **Mastorci et al., (2021)**⁽²¹⁾ titled in Health-related quality of life in Italian adolescents who found that more than half of children had low quality of life.

Regarding to mental health, the current results revealed that more than half of studied students had low somatization and more than one quarter of them had moderate obsessive compulsive. Also, more than one quarter of studied students had moderate anxiety, more than half of them had low depression. According to total mental health, about half of studied students had low mental health and about one quarter of them had moderate mental health. These results attributed to adolescents are at greater risk of mental health conditions due to their living conditions, stigma, discrimination or exclusion, or lack of access to quality support and services. These results cohort with the study performed by **Carpi et al., (2022)**⁽²²⁾ about sleep quality and its associations with physical and mental health-related quality of life among adolescent students and found that students reporting higher perceived stress scores and lower physical and mental HRQoL scores. Also, **Albaladejo-Blázquez et al., (2019)**⁽²³⁾ who conduct study titled in "Health-related quality of life and mental health of adolescents involved in school, found that

mean score of depression was 2.85 (3.47) and anxiety was 2.94 (3.68).

Additionally, more than two thirds of studied subjects had high academic success, more than one third of them had high impulse control, and more than two thirds of studied subjects had high academic productivity. According to total academic performance, more than half of studied subjects had high academic performance, while one fifth of them had low academic performance. These results may be due to about half of studied students had low mental health and about one quarter of them had moderate mental health which negatively effect on academic process. These results regular with the study by **Lumley et al., (2015)**⁽²⁴⁾ about Self-reported extracurricular activity, academic success, and quality of life in UK medical students, who showed that about one quarter of students had low academic scores and face difficult at finished tasks.

Regarding to linear regression model or study detected 39% of the variation in total mental health detected through R2 value 0.390. Also, explained that gender and number of siblings had no effect on mental health at p value >0.05. While stage and age had slight negative effect on mental health at p value <0.05. These results inconsistent with the study by **Li et al., (2018)**⁽²⁵⁾ who reported that there was positive effect between age and emotional exhausting. Also, **Bastaminia et al., (2016)**⁽²⁶⁾ at their study about mental health and quality of life among adolescent students who detected that the Multiple linear regression showed that total mental health score is significantly correlated with physical health, social relationships, and environment dimensions

of QOL, and gender and number of available rooms (P<0.05). Additionally, **Cavioni et al., (2021)**⁽¹⁷⁾ found that quality of school relations and mental health declined with age.

Moreover, there was high negative correlation between anxiety level and quality life at p value <0.01**. Also, there was high negative correlation between obsessive-compulsive and total mental health with quality of life at p value <0.01**. Additionally, there was high negative correlation between somatization, conduct disorder and total mental health with academic performance at p value <0.01**. These results supported with the study by **Shareef et al., (2015)**⁽²⁷⁾ who reported that the high academic performance of students positively correlated with good physical (r=0.23, p<0.001), good psychological health (r=0.29, p<0.001), social relations (r=0.11, p=0.03) and environment (r=0.23, p<0.001). Also, **Gougis, (2020)**⁽²⁸⁾ at study about the effects of prejudice and stress on the academic performance of Black-Americans and found that Stress decreases academic performance level.

Finally, there was high negative correlation between Academic performance and mental health at p value <0.01**. Also, high negative correlation between Mental health and quality of life at p value <0.01**. While there was high positive relation between Quality of life and Academic performance at p value <0.01**. These results consistent with the study by **Zada et al., (2021)**⁽²⁹⁾ about Effect of mental health problems on academic performance among adolescent students in Pakistan who showed that the results of the study reveal that there is a

strong positive association between mental health and improvement in academic performance. Mental health problems negatively affect the academic performance of adolescent students.

Likewise, **Drum et al. (2019)**⁽³⁰⁾ conducted a study on 26,000 students from 70 school. Its results revealed that mental health problems such as suicidal thoughts, intent, and actions influence students' professional and personal lives. Furthermore, **Qi et al. (2020)**⁽¹⁹⁾ at their study about Association of academic performance, general health with health-related quality of life in primary and high school students in China who found that both self-rated academic performance and general health status were positively associated with HRQoL among Chinese students, and such relationships were independent of lifestyle-related behaviors and body weight status. Also, the study by **Parvizi et al., (2021)**⁽³¹⁾ about Relationship of pupils' quality of life and academic achievement with the employment status of their mothers, who detected that high positive correlation between pupils' quality of life and academic achievement.

Conclusion:

About three quarters of studied adolescent students had low quality of life. In addition, half of studied students had low mental health. Likewise, less than two thirds of studied subjects had high academic performance. Furthermore, there was high negative correlation between Academic performance and mental health at p value <0.01**. Also, high negative correlation between Mental health and quality of life at p value <0.01**. While there was high positive relation between Quality of life and Academic performance at p value <0.01**.

Recommendations:

Finally, it should be considered that the mentioned association may be affected by different factors, so it recommended similar studies by controlling the effect of a more probable confounder. Further, health education and promotion of quality of life should be integrated into the educational strategies and policies of all educational centers. It is necessary to carry out longitudinal studies in adolescents to reinforce these findings and begin to fill the knowledge gaps identified in this research. Providing education program for improving mental health and quality of life among adolescents' students.

References

1. **Nottage, M. K., Oei, N. Y., Wolters, N., Klein, A., Van der Heijde, C. M., Vonk, P. & Koelen, J.** Loneliness mediates the association between insecure attachment and mental health among school students. *Personality and Individual Differences*, 2022, pp.185.
2. **Frink, J. E.** Flourishing: Exploring predictors of mental health within the college environment. *Journal of American school Health*, 2014: 62(6): 380–388.
3. **World Health Organization Trends in Maternal Mortality: 1990 to 2010.** WHO, UNICEF, UNFPA and the World Bank, 2010
4. **Chen, T., & Lucock, M.** The mental health of adolescent students during the COVID-19 pandemic: An online survey in the UK. *PLoSone*, 2022, 17(1): e0262562.
5. **Wang, F.** Mental health among adolescent students Left-behind children in rural China in relation to

- parent-child communication. *International Journal of Environmental Research and Public Health*, 2019, 16(10): 1855.
6. **Anttila, M., Sittichai, R., Katajisto, J., Vlimki,** Impact of a web program to support the mental wellbeing of high school students: *International Journal of Environmental Research and Public Health*, 2019; 16(14): 2473.
 7. **Bayram, N. & Bilgel, N.** The prevalence and socio-demographic correlations of depression, anxiety, and stress among a group of adolescent students. *Social Psychiatry and Psychiatric Epidemiology*, 2018; 43(8): 667–672.
 8. **Beames A., Dastoorpoor, M., Omidipoor, K. & Tomaj, O. K.,** Mental Health and Quality of Life among adolescent students. *International Journal of Science Commerce and Humanities*, 2022; 4(4): 70-6
 9. **Kobylarek, A., Błaszczyński, K., Śl ósarz, L., Madej, M., Carmo, A., Hlad, Ľ., & Petrikovičová, L.** The Quality of Life among adolescent Students in Poland, Ukraine and Belarus. *Sustainability*, 2022; 14(4): 2049.
 10. **Raknes, S., Pallesen, S., Himle, J. A., Bjaastad, J. F., Wergeland, G. J., Hoffart, A. & Haugland, B. S.,** Quality of life in anxious adolescents. *Child and adolescent psychiatry and mental health*, 2017; 11(1): 1-11.
 11. **Liu, Y., Zhang, N., Bao, G., Huang, Y., Ji, B., Wu, Y., & Li,** Predictors of depressive symptoms in adolescent students. *Journal of Affective Disorders*, 2019; 244, 196-208.
 12. **Sheldon, E., Simmonds-Buckley, M., Bone, C., Mascarenhas, T., Chan, N., Wincott, M. & Barkham,** Prevalence and risk factors for mental health problems in adolescent students: *Journal of affective disorders*, 2021; 287, 282-292.
 13. **Shorey, S., Ng, E. D., & Wong, C. H.** Global prevalence of depression and elevated depressive symptoms among adolescents: *British Journal of Clinical Psychology*, 2022; 61(2): 287-305.
 14. **Pedro, E., Leitão, J. & Alves, H.** Does the quality of academic life matter for students' performance, *Applied Research in Quality of Life*, 2016; 11(1): 293-316.
 15. **Wei, Y., Li, H., Wang, H., Zhang, S. & Sun, Y.** Psychological status of volunteers in a World Health Organization. *Trends in maternal mortality: 1990 to 2010*. WHO, UNICEF, UNFPA and the World Bank; 2018.
 16. **DuPaul, G. J., Rapport, M. D., & Perriello, L. M.** Teacher ratings of academic skills: The development of the Academic Performance Rating Scale. *School psychology review*, 1991; 20 (2): 284-300.
 17. **Cavioni, V., Grazzani, I., Ornaghi, V., Agliati, A. & Pepe, A.** Adolescents' mental health at school: The mediating role of life satisfaction. *Frontiers in Psychology*, 2021; 3322.
 18. **Jiang, Y., Guo, L., Lai, W., Li, Y., Sun, X., Zhao, H., & Zhu,** Association of emotional and behavioural problems with sleep

- disturbance among Chinese adolescents: The moderation effect of academic performance. *Journal of Affective Disorders*, 2023: 94-100. <https://doi.org/10.1016/j.jad.2023.02.136>.
19. **Qi, S., Qin, Z., Wang, N., Tse, L. A., Qiao, H., & Xu, F.** Association of academic performance, general health with health-related quality of life in primary and high school students in China. *Health and Quality of Life Outcomes*, 2020; 18(1): 1-11.
 20. **Hidalgo-Rasmussen, C. A., Ramírez-López, G., Rajmil, L., Skalicky, A., & Martín, A. H. S.** Bullying and health-related quality of life in children and adolescent Mexican students. *Ciência & Saúde Coletiva*, 2018; 23, 2433-2441
 21. **Mastorci, F., Piaggi, P., Doveri, C., Trivellini, G., Casu, A., Pozzi, M. & Pingitore, A.** Health-related quality of life in Italian adolescents during covid-19 outbreak. *Frontiers in Paediatrics*, 2021; 9, 611136
 22. **Carpi, M., Cianfarani, C. & Vestri, A.** Sleep quality and its associations with physical and mental health-related quality of life among adolescent students: a cross-sectional study. *International journal of environmental research and public health*, 2022; 19(5), 2874.
 23. **Albaladejo-Blázquez, N., Ferrer-Cascales, R., Ruiz-Robledillo, N., Sánchez-SanSegundo, M., Fernández-Alcántara, M., Delvecchio, E. & Arango-Lasprilla, J. C.** Health related quality of life and mental health of adolescents involved in school bullying and homophobic verbal content bullying. *International journal of environmental research and public health*, 2019: 16(14), 2622.
 24. **Lumley, S., Ward, P., Roberts, L., & Mann, J. P.** Self-reported extracurricular activity, academic success, and quality of life in UK medical students. *International journal of medical education*, 2015:6, 111.
 25. **Li, J., Han, X., Wang, W., Sun, G., & Cheng, Z.** How social support influences university students' academic achievement and emotional exhaustion: The mediating role of self-esteem. *Learning and individual differences*, 2018; 61, 120-126.
 26. **Bastaminia, A., Dastoorpoor, M., Omidipoor, K., & Tomaj, O. K.** Mental Health and Quality of Life among students of the State University of Yasuj. *International Journal of Science Commerce and Humanities*, 2016; 4(4).
 27. **Shareef, M. A., AlAmodi, A. A., Al-Khateeb, A. A., Abudan, Z., Alkhani, M. A., Zebian, S. I. & Tabrizi, M. J.** The interplay between academic performance and quality of life among preclinical students. *BMC medical education*, 2015; 15(1): 1-8.
 28. **Gougis, R. A.** The effects of prejudice and stress on the academic performance of Black Americans. In *The school achievement of minority children*, Routledge. 2020; pp. 145-158.
 29. **Zada, S., Wang, Y., Zada, M., & Gul, F.** Effect of mental health

- problems on academic performance among adolescent students in Pakistan. *Int. J. Ment. Health Promot*, 2021; 23,395-408.
30. **Drum, D. J., Brown Son, C., Burton Denmark, A., Smith, S. E.** New data on the nature of suicidal crises in college students: Shifting the paradigm. *Professional Psychology: Research and Practice*, 2019; 40(3): 213.
31. **Parvizi, F., Lotfi, M. H., Fararouei, M., & Fallahzadeh, H.** Relationship of pupils' quality of life and academic achievement with the employment status of their mothers. *Journal of Preventive Medicine and Hygiene*, 2021; 62(1): E164.
32. **Phase I.**, Clinical trial assessed by Symptom Checklist 90 (SCL-90) and Eysenck Personality Questionnaire (EPQ). *Medical science monitor: international medical journal of experimental and clinical research*, 24, 4968.