



The Impact of Blood Group on Mental Health at Medical Students, Spinghar University, Kabul, Afghanistan

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Absrtact

Esophageal Foreign bodies (EFB) constitute a common emergency of otorhinolaryngology practice in children, causing substantial morbidity. A diverse range of objects have been reported as EFBs, with coins representing the most common type in pediatric population, which can cause daring complications, if left untreated. This retrospective study aimed to review the cases of EFBs in children admitted to Nangarhar University Teaching Hospital (NUTH), the sole public sector healthcare facility dealing with such cases in eastern zone of the country, from Sep 2022 to Dec 2024. The children aged less than 18 years, admitted and treated for EFBs, were included. The patients who had spontaneously passed the EFB into the stomach prior to esophagoscopy were excluded. Data collected included demographics, symptoms, type of foreign body, location of foreign body impaction, duration of impaction, hospital stay, outcomes and complications. Data analysis was performed through IBM SPSS statistics 21. A total of 46 children were diagnosed and treated for EFBs during study period, representing a prevalence of 4.67%% among all admitted children. All of them underwent rigid esophagoscopy. The study comprised 26 males (56.5%) and 20 females (43.5%). The median of age was 4.5 years ranging from 1.5 to 16 years. Forty-one patients (89.1%) presented with different symptoms whereas the remaining 5 (10.9%) were asymptomatic. According to type of foreign body 37 (80.4%) patients presented with coins, 4 (8.7%) with batteries and remaining 5 (10.9%) with miscellaneous foreign bodies. The median duration of foreign body impaction and hospitalization time were one day (range: 1- 45days) and 24 hours (range: 10- 48 hours), respectively. Although, this study delivers valuable insights regarding EFBs in a Zone level teaching hospital, further research is needed to explore hidden aspects of the problem.

Keywords: Blood Group Types, Medical Students, Mental Health, Risk Factors

Introduction

An individual's ability to effectively manage stress, work efficiently, and contribute to their community is greatly impacted by their mental health, which is a crucial component of their overall well-being. Mental health is essential in the context of higher education, especially for medical students. Medical students frequently face severe academic pressure, lengthy study sessions, and the psychological pressure of clinical experiences [1]. Compared to the general population, these stresses may increase the prevalence of mental



health conditions such as stress, anxiety, and depression. It is essential to address mental health issues in these students since they have a direct impact on their academic achievement, professional growth, and ability to provide future medical services[2].

The relationships between different blood group types and health consequences have been investigated. Blood group types are classified by the ABO and Rh systems. Different blood group types have been found to affect immune responses, psychological features, and even how susceptible someone is to specific illnesses. Still, little is known about the connection between blood group types and mental health. Examining this possible connection may bring new ideas on the biological aspects of mental health, resulting in a more thorough knowledge of the variables influencing mental health[3].

Furthermore, there are broader ramifications for the field of medical education from this study[4]. The success of medical students, both academically and professionally depends on their health, as they represent the future of health care. Educational institutions can take a more holistic approach to student well-being by incorporating biological, psychological, and social components into their support systems and identifying potential biological factors that influence mental health. Students' mental health could improve as a result of this comprehensive strategy, enhancing both their academic achievement and future patient care[5].

Concerns about medical students' mental health are becoming more prevalent in Afghanistan. The nation has seen decades of economic challenges, political instability, and warfare, all of which contributed to the country's overloaded healthcare system and lack of resources for mental health[6]. Medical students at Spinghar university, Kabul have to deal not just with the demanding academic load but also with larger socio-political pressures that hurt their psychological health. To shed light on this important topic, this study attempts to look at the possible effects of these young children's blood group types on their mental health[7]. The main goal of this study is to examine the relationship between blood group types and mental health status among medical students at Spinghar University, Kabul. We can determine whether particular blood group types are associated with greater or lesser prevalence of mental Health issues by understanding this relationship. The development of focused interventions and support networks for students may benefit greatly from these findings, which would ultimately improve their academic performance and general well-being[8].

A and AB blood groups compared to those of the O blood group had significantly higher scores on the measures of high mental health problems[9].

As we have seen, the majority of students don't have an interest in their studies so we have decided to know the reason behind this. After extensive discussion, we have decided to do research between blood group and mental health.

Research methodology

Methodology: We collected data from students between 18-42 years of age. About 10 different types of questions related to mental health (Physical Activity, Depression, sleeping problems, Economic situation, Illnesses, and many more) to understand their feeling and mental health issues.

Research Design: Quantitative Descriptive research design survey was used at Spinghar Medical University in Kabul Afghanistan. We have asked questions from students about their daily life

Sample Size: 304 students all of whom were male, it was based on direct evaluation and self-administered questionnaires with the participants. We filled out the questionnaire with face-to-face interviews with all students for 5 to 10 minutes.

Medical and Lab Procedures: Following SOPs to know a physical health, blood pressure Level by Medical Doctors and Using Antisera for ABO Blood group and Rh type at Diagnostic and Research Laboratory of Spinghar Medical University.

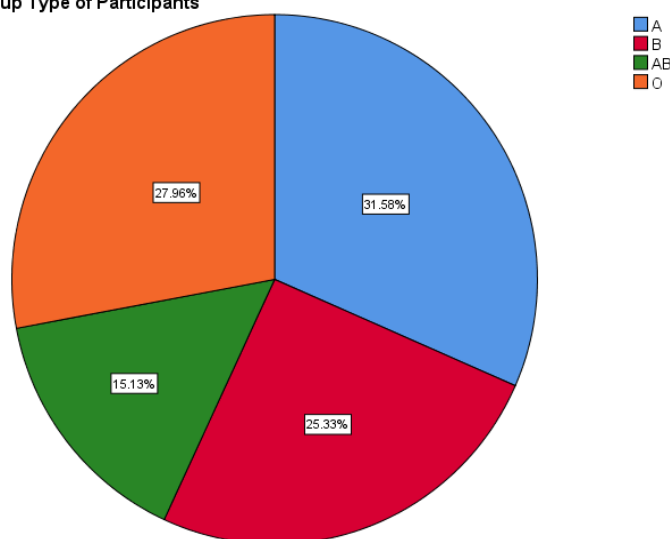
Data Analysis

We uploaded all collected data into an excel sheet and analyzed by IBM SPSS 26 version.

Statistical analysis has been conducted to explore the effect of blood group types on mental health status, with results presented in tables, graphs, and charts for clarity.

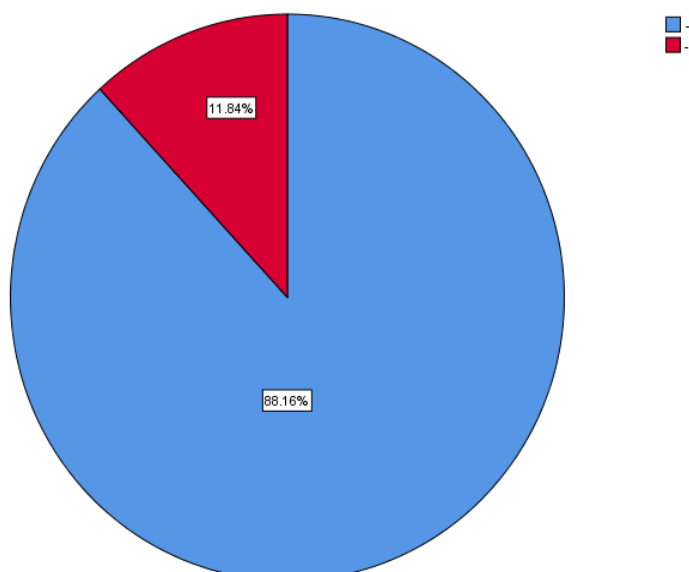
The Following pie chart analyzed on the base of Blood Group Types of Participations, 31.58% Group A, 27.96% O Group, 25.33% Group B and 15.13% shows AB Blood Group of Participants.

Blood group Type of Participants



According to the Following Pie Chart the Data Analysis shows that there are 88.16% Rh Factor Positive and 11.84% are Rh Factor Negative students.

Rh Type



MH_Mean * Blood group Crosstabulation

This table shows high mental issues and low mental issues, according to blood group as the table shows High Mental health issues in the A group participants were 8 and the expected count was 15.8. similarly, the B group observed count was 10 and the expected count was 12.7. AB group shows 9 participants and 7.6 expected count, while the O group of students shows 23 counts, which was expected 14.0 of the whole students.

			Blood group				Total
			A	B	AB	O	
MH Mean	High Mental Health Issues	Count	8	10	9	23	50
		Expected Count	15.8	12.7	7.6	14.0	50.0
	Low Mental Health Issues	Count	88	67	37	62	254
		Expected Count	80.2	64.3	38.4	71.0	254.0
Total	Count		96	77	46	85	304
	Expected Count		96.0	77.0	46.0	85.0	304.0

The chi-square test is used for the Distribution and relationship of Categorical Data we have applied for the relation of Blood Group with Mental Health, which indicates that Blood Group affects Mental Health.

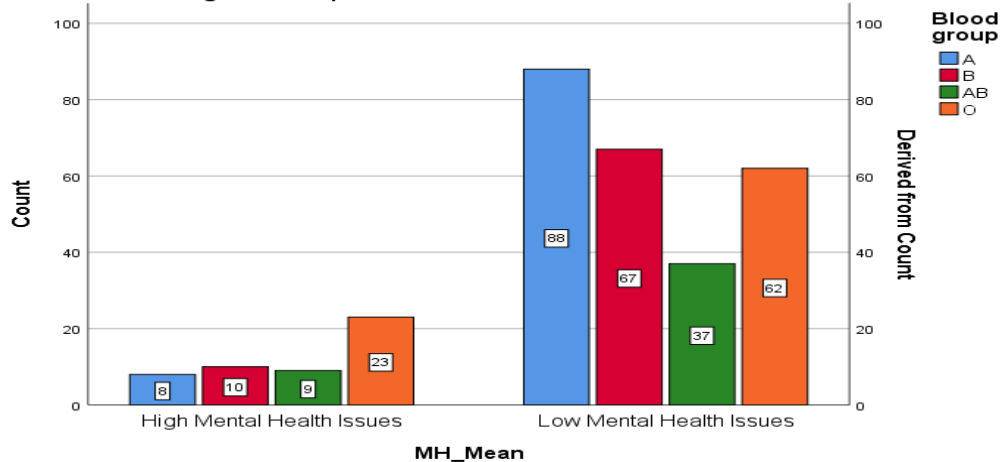
Chi-Square Tests

	Value	pdf	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.560 ^a	3	.006
Likelihood Ratio	12.516	3	.006
Linear-by-Linear Association	12.403	1	.000
N of Valid Cases	304		

a. 0 cells (.0%) have an expected count of less than 5. The minimum expected count is 7.57.

The Following Bar Chart shows that there is a high Mental Health issue in Blood Group O, Consequences AB Blood group of Students, as the analysis shows that there are low mental health issues in Blood Group Type A and AB.

Bar Chart according to B.Group wise Mental Health Issues



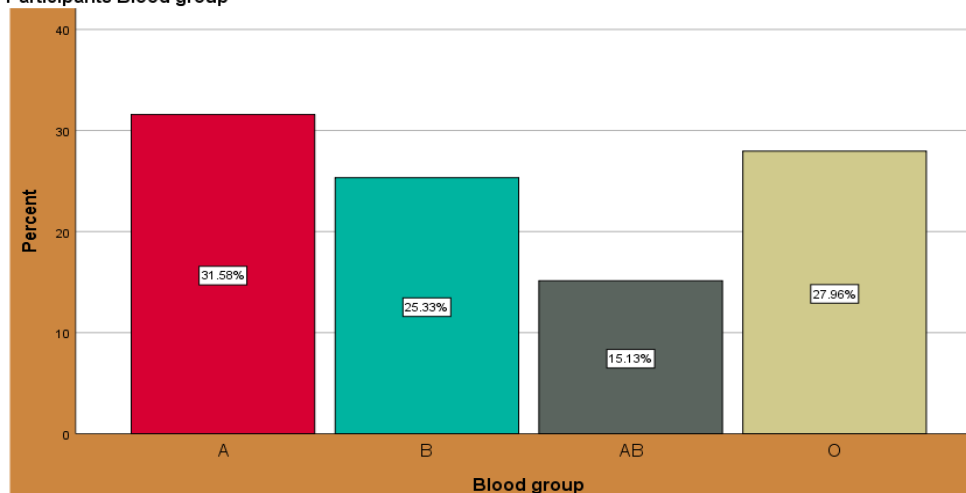
Age Base analysis indicates the highest number of students were between 18--25 age about 86.2%, and the lowest age above 42 years which shows only 1% of Students.

Participants Age

Variable	Frequency		Percent
age	18-25	262	86.2
	26-33	35	11.5
	34-41	4	1.3
	42-above	3	1.0
	Total	304	100.0

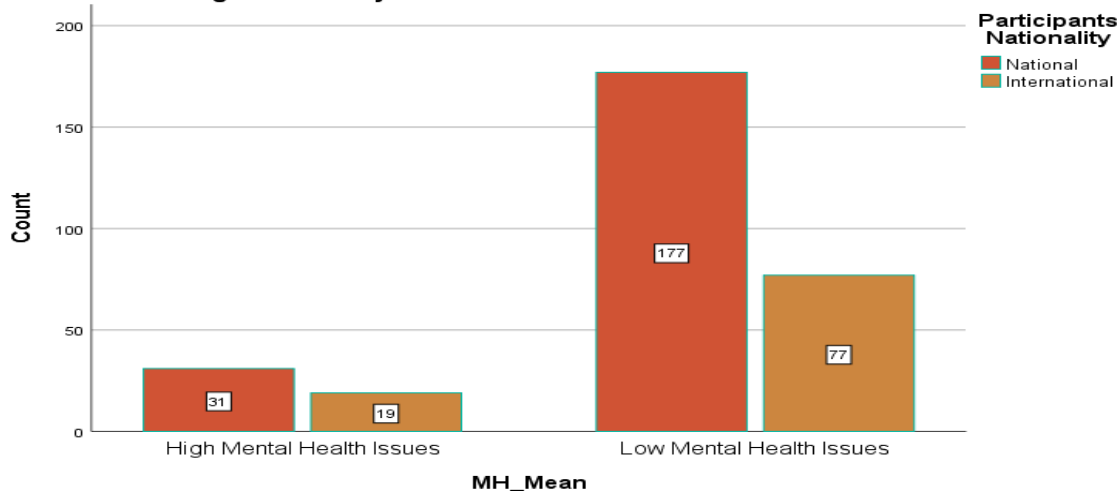
According to Blood Group Type the Data Analysis shows 96 participants (31.58%) in Group Type A, 77 participants (25.33%) are Group Type B, 46 participants (15.13%) are Group Type AB and 85 Participants (27.96%) are O type of Blood Group Students.

Participants Blood group

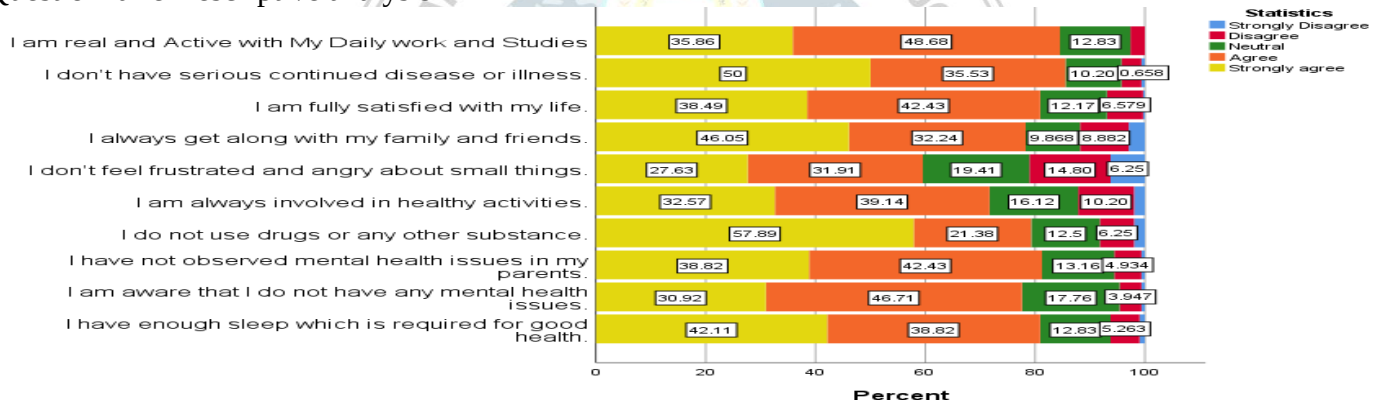


The Following Bar Chart Shows there are no more differences according to Nationality but some differences may show the government and economic situation in Afghanistan.

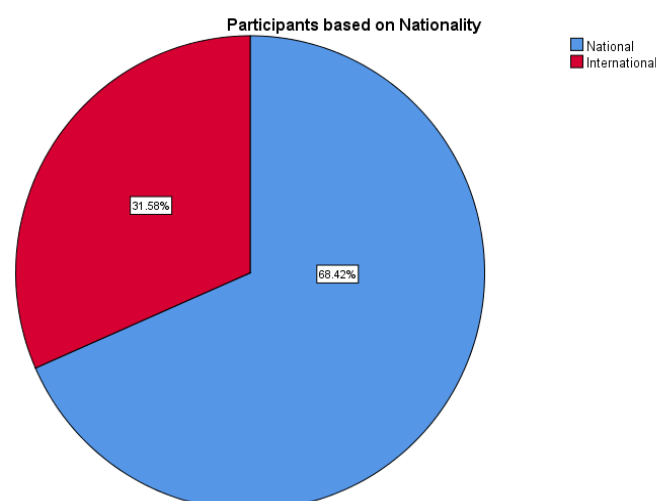
Bar Chart according to Nationality



Questionnaire Descriptive analysis

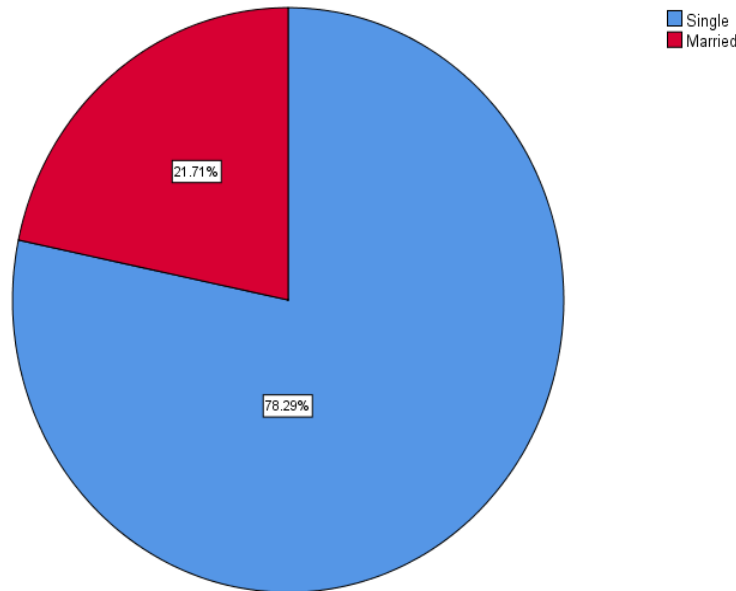


The Pie chart shows that there are 208 National Student participants (68.42%), and 96 participants were international students (31.58%).



According to Marital Status, the Data Analysis shows that there are 21.71% of Students were married and others (78.29%) were unmarried.

Marital Status



The following table shows a High Mental Health issues according to age base Analysis, there 43 students were between ages 18-25 years, 6 students were between 26- 33 years old and only one student was between 34-41 years old and no one has mental health issue above 42 years.

As we see there are Highest mental health issues in the Z generation that are between 18-25 Years and the Lowest age is Above 42 years

		Mental health issues		
		High Mental Health Issues	Low Mental Health Issues	Total
Age	18-25	43	219	
		16.4%	83.6%	
				86.2%
	26-33	6	29	
		17.1%	82.9%	
				11.5%
	34-41	1	3	
		25.0%	75.0%	
				1.3%
	42-above	0	3	
		0.0%	100.0%	
				1.0%



Findings

- **Blood Group Distribution:**
 - 31.58% of participants have Blood Group A.
 - 27.96% have Blood Group O.
 - 25.33% have Blood Group B.
 - 15.13% have Blood Group AB.
- **Rh Factor Distribution:**
 - 88.16% are Rh Factor Positive.
 - 11.84% are Rh Factor Negative.
- **Mental Health Issues by Blood Group:**
 - The highest prevalence of high mental health issues was observed in Blood Group O (23 students), followed by Blood Group AB (9 students), Blood Group B (10 students), and Blood Group A (8 students).
 - Blood Group A and AB show relatively lower instances of high mental health issues.
- **Chi-Square Test Results:**
 - The chi-square test indicates a significant relationship between Blood Group and Mental Health issues, with a p-value of 0.006 (Pearson Chi-Square) and 0.000 (Linear-by-Linear Association).
- **Age Distribution:**
 - 86.2% of participants are between 18-25 years old.
 - 11.5% are between 26-33 years old.
 - 1.3% are between 34-41 years old.
 - 1.0% are above 42 years old.
 - Highest mental health issues are reported in the 18-25 age group (16.4%), with no issues reported in the above 42 age group.
- **Nationality Distribution:**
 - 68.42% of participants are national students.
 - 31.58% are international students.
- **Marital Status:**
 - 21.71% of participants are married.
 - 78.29% are unmarried.
- **High Mental Health Issues by Age:**
 - 43 students aged 18-25 have high mental health issues.
 - 6 students aged 26-33 have high mental health issues.
 - 1 student aged 34-41 has high mental health issues.
 - No students aged above 42 have high mental health issues.

Discussion

This study at Spinghar University-Kabul discovered a small but significant association between blood group types and mental health problems among medical students. Students in blood group O had the highest frequency of mental health issues, followed by those in groups AB, B, and A. Based on possible biological and physiological reasons, blood group O may be more likely to have mental health problems, according to the results of the chi-square test ($\Phi = 0.203$, $p = 0.006$).

Age was another important factor; younger students (18–25 years old) had the highest rate of mental health issues, probably as a result of academic pressures and larger sociopolitical issues in Afghanistan. This



demonstrates that although blood group type may be a determinant in mental health susceptibility, it is not the only one; stress related to school, socioeconomic status, and lifestyle choices are all important contributions. The fact that students who have blood types A and AB reported less mental health problems is important and indicates the possibility of benefits that should be researched further. These differences highlight the complexity of mental health, which is impacted by a range of biological, environmental, and psychological elements.

The results highlight the significance of a comprehensive approach to mental health in medical education, including psychological and social support and biological elements like blood group types. Institutions should design tailored treatments to improve the mental health outcomes, academic performance, and general well-being of at-risk students and ensure better preparedness for their future medical professions.

Conclusion

The Spinghar Institute of Higher Education in Kabul's medical students' blood group types and mental health problems were shown to be significantly correlated in the study. With 23 students reporting major mental health concerns, blood type O students had the highest prevalence of mental health problems. Blood groups AB (9 students), B (10 students), and A (8 students) followed. This link was validated by the chi-square test, which produced a significant result ($p = 0.006$) and raised the possibility that Medical Students with blood type O may be more susceptible to mental health issues.

Furthermore, 86.2% of the participants were younger students, with a higher prevalence of mental health concerns within this group, especially those between the ages of 18 and 25. Due to the particular difficulties this group faces, such as the strain of academics and the sociopolitical constraints in Afghanistan mental health issues may worsen. The results highlight the significance of considering biological and environmental factors when treating mental health concerns in medical students.

Suggestion

1. As we have examined that there is a significant relationship between blood group and mental health, so medical students must not put so much pressure on themselves as that damages their brain.
2. As we have found that young students have more anxiety and depression so there must be public awareness for them to keep their hard work and not think so much about the future.
3. There is evidence that the O blood group may experience mental health so further research is needed only for O group people.
4. Conduct more extensive studies with a larger population to determine the relationship between blood group types and mental health.

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