



## EATING PATTERN AND ABO BLOOD GROUP: A RIGOROUS EXAMINATION BY SCOFF QUESTIONNAIRE IN THE FEMALE RESIDENTS OF HYDERABAD, PAKISTAN.

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### ABSTRACT

**BACKGROUND:** The significance of determining the frequency of blood typing in various diseases and eating habits grew after Landsteiner's 1901 discovery of human genetic differences in blood typing. **OBJECTIVES:** The aim of the study is thus to find out any relationship between different blood groups and eating disorder. **METHODOLOGY:** The significance of determining the frequency of blood typing in various diseases and eating habits grew after Landsteiner's 1901 discovery of human genetic differences in blood typing. **RESULTS:** The eating disorders were recognized by Scoff's questionnaire. The statistical analysis was done on Graph Pad Prism9. the statistics and contingency options were explored to obtain *P* value. When normal menstruating women were compared to menopausal women, the prevalence of blood groups was 23% and 20% for A blood typing, 19.9% and 18.8% for B blood typing, 3.3% and 6.1% for AB Blood typing, and 13.8% and 14.3% for blood type O. Rh positive in typical female was 46.4% and 49.2% in menopausal ladies while Predominance of Rh negative was 3.3% and 1.1%. The study demonstrates the likelihood of an association between the aforementioned groups and the prevalence of blood typing.

**KEY WORDS:** Blood typing, Rh blood, Prevalence, Menopause.

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### INTRODUCTION

"Irregular restrictions on food due to different and complex reasons" is one definition of eating disorders. There is a primary link between mental health and eating disorders. Various psychological and mental health issues typically precede the onset of this illness. Since it was originally documented in the 17th century, there has been a significant increase in its incidence. The etiological elements include excessive food dieting and non-medical weight-loss techniques.<sup>1</sup> Both the World Health Organization (WHO) and the American Psychiatric Association (APA) classify eating and restricting disorders differently. These consist of binge eating disorders (BED), anorexia nervosa, bulimia nervosa, and

avoidance/restrictive food disorders (ARFD). There is a severe restriction on food intake in Anorexia Nervosa; an irregular but mild restriction in Bulimia Nervosa; an irregular but mild restriction in Binge Eating Disorder; and a severe restriction on all food intakes, normal or selected, in Anorexia Nervosa.<sup>2</sup> Large US cohort studies estimate the lifetime prevalence of binge eating disorder, anorexia nervosa, and bulimia nervosa in adult women to be 1.42%, 0.46%, and 1.25%, respectively; equivalent estimates for adult men are 0.08%, 0.42%, and 0.12%, respectively.<sup>3</sup> Although eating disorders are more common in women and Western nations, they are also becoming more common in Asian nations due to changes in lifestyle.<sup>4</sup> Eating disorders are spreading

quickly throughout the world's population. Each year, 500 million Americans suffer from this condition.<sup>5</sup> Psychological issues are typically linked to eating disorders in cases where an individual has excessive body image and weight concerns. It results from rigorous dieting and skipping meals. Usually, athletes and celebrities get involved.<sup>6</sup> Solmi's research indicates that eating disorders, which primarily impact the older age group, have a significant impact on people's mental and physical health.<sup>7</sup> eating disorders effect the metabolic system of the body resulting in Diabetes mellitus and other metabolic disease.<sup>8</sup> Eating disorders are more common in females and it may be because of hormonal changes in female body especially at puberty.<sup>9</sup>

Several investigations have shown that systemic illnesses associated with blood phenotypes are more common in certain blood groups than in others.<sup>10</sup> Eating problems have been linked to different blood types. For various blood groups, dieticians typically recommend different combinations of diet plans. D'Adamo taught the world that different blood groups should have distinct eating habits in his book "Eating Right for Your Type."<sup>11</sup> Blood types differ in their diets and eating habits as well as in their susceptibilities to disease, according to D'Adamo studies, with blood type B having the highest prevalence of disease.<sup>12</sup>

Blood types were discovered in the early 1800s. Many studies worldwide have been conducted since blood type was discovered to find out how blood types relate to various diseases such as eclampsia, cancer, cardiovascular disease, and blood disorders.<sup>13</sup> Blood types are utilized for transplanting different organs and tissues, and there are four blood groups available for blood transfusions. Among them are the A, B, AB, and O groups. Landsteiner produced the first discovery of the Rh group in 1941. The positive and negative categories were then established.<sup>14</sup> Red blood cells and a variety of epithelial cells are coated in an antigen known as the carbohydrate moiety of ABO blood types. Because of these antigens' special capacity to bind to different allergens, a variety of diseases, including COPD, might arise. The prevalence of COPD is higher in families when there is a history of allergic illnesses in the parents.<sup>15</sup>

The International Society of Blood Transfusion states that there are 43 blood types and 345 blood antigens. Blood groups were first discovered around 1900. Globally, there are four recognized blood groups: A, B, AB, and O. they are classified because of the existence of glycoprotein antigens. Additional blood groups are the Kidd, Dell, Duffy, and Minnesota groups.<sup>16</sup> The human body has antigens specific to ABO blood types in many different places, such as platelets, red blood cells, the artery endothelium, and other body cells. Blood group antigens play a role in hemostasis and the stabilization of cell membranes, in addition to acting as allergen receptors. Certain blood types may be more resistant to certain diseases than others because of the potency of their antigens.<sup>17</sup>

ABO blood types, in particular, have a tight association with several diseases. It has been noted that O blood groups are immune to pancreatic cancer, but non-O blood groups suffer from cardiovascular diseases.<sup>18</sup> Blood types are typically associated with allergic bronchospasm. Additional confirmation comes from a greater serum eosinophil concentration.<sup>19</sup> Research has shown that some blood types are more prone to specific illnesses, like the B group's higher prevalence of plasmodium falciparum.<sup>20</sup>

The aim of this study was to compare the percentages of different blood groups in normal versus the likelihood of eating disorders in individuals.

#### **METHODOLOGY**

200 and ten (n=210) volunteers were signed up for this review and additionally a trial concentrate on in certain and fixed timeframe (July 2023 to November 2023(05 months)). The sample was obtained from various districts in Hyderabad, Pakistan, with written consent before collection. The average age was between 40 and 60. Both single and married women make up the sample. Using standard antisera A, B, and D from Rapid Labs UK, the antigen-antibody reaction (Agglutination reaction) test was used to perform ABO and Rh blood typing. The blood composing was performed two times with a similar example to limit the mistake. The SCOFF questionnaire was employed for its efficacy in identifying potential eating disorders, with meticulous attention to both precision and participant comfort. In a carefully orchestrated process, participants received the

questionnaire along with comprehensive instructions within a secluded and quiet setting, creating an environment conducive to candid and accurate responses.<sup>21</sup>

It's worth noting that the SCOFF questionnaire comprises five inquiries designed to probe various facets of eating behaviors and attitudes. Each question seeks nuanced insights into participants' experiences, providing a comprehensive understanding of their relationship with food.

The questionnaire was comprised the following inquiries:

1. History of self-induced vomiting: the answer was ranging from "Never" to "Always," enabling them to express their experiences.
2. Whether they were concern that eating will cause weight gain. The answer ranges from "Never" to "Always."
3. History of weight loss in previous three months (14 lbs. or 6.35 kg). A binary response choice of "No" or "Yes" were be offered.

4. Whether they were curious about external opinions. Response options spanning from "Never" to "Always" facilitate a comprehensive assessment.

5. Whether the thoughts of food dominated their lives. The response ranges from "Never" to "Always"

This systematic approach to self-administration guarantees participants' independence in filling out the SCOFF questionnaire, creating a private and supportive environment for open self-disclosure.

**Statistical Analysis:**

Data are shown as proportions and percentages; n indicates the number of women investigated. P values were taken by calculating fisher's exact Test. Significance was given to value < 0.05

**RESULTS**

**Table. 1: Rhesus (Rh) blood typing of normal versus SCOFF positive individuals.**

Blood typing	Normal	SCOFF positive	Total	Confidence interval	Odds ratio	X <sup>2</sup>	p-value
Rh(-)	11(5.24%)	08(3.80%)	19(9.05%)				
Rh(+)	108(51.43%)	83(39.52%)	191(90.95%)	0.470-2.23	1.02	0.016	0.89
Total	119(56.67%)	91(43.33%)	210(100%)				

Table 1 illustrates that Rh+ were 1.02% more involved in eating disorders (Odds ratio1.02), the P value was non-significant (0.89).

**Table. 2:** The proportion of ABO blood types in normal versus SCOFF positive individuals.

Blood typing	Normal	SCOFF positive	Total	X <sup>2</sup>	p-value
A	30(14.28%)	29(13.81%)	59(28.09%)	0.815	0.84
B	36(17.14%)	32(15.24%)	68(32.38%)		
AB	08(3.80%)	04(1.90%)	12(5.71%)		
O	45(21.43%)	26(12.38%)	71(33.81%)		
Total	119(56.67%)	91(43.33%)	210(100%)		

As presented in Table 2, the distribution of blood group alleles reveals that Blood Group B predominates as the most prevalent allele at 15.24%, followed by A at 13.81%, O at 12.38%, and AB at 1.90%. The x<sup>2</sup>was 0.81

while the P value was 0.84 showing non significance.

**Table. 3:** The proportion of ABO and Rh blood types in normal versus SCOFF positive individuals.

Blood typing	Normal	SCOFF positive	Total	Confidence interval	Odds ratio	X <sup>2</sup>	p-value
A-	02(0.95%)	01(0.48%)	03(1.43%)				

A+	28(13.33%)	28(13.33%)	56(26.66%)	0.171-23.4	2.00	0.00	0.97
B-	04(1.90%)	05(2.38%)	09(4.28%)	0.165-2.77			
B+	32(15.25%)	27(12.86%)	59(28.09%)		0.67	0.03	0.85
AB-	01(0.48%)	00(00%)	01(0.48%)	0.059-54.38			
AB+	07(3.33%)	04(1.90%)	11(5.23%)		1.8	0.13	0.71
O-	04(1.90%)	02(0.95%)	06(2.85%)				
O+	41(19.53%)	24(11.43%)	65(30.95%)	0.199-2.88	1.17	0.07	0.78
Total	119(56.67%)	91(43.33%)	210(100%)				

Table 3 displays the distribution of blood types in both normal and SCOFF positive individuals. The prevalence is matched among positive and negative groups. The most prevalent blood type is O+ at 30.95%, followed by A+ at 26.66%, and B+ at 28.09%. Notably, odds ratios and p-values for A+, B+, and O+ indicate potential associations with SCOFF positivity, while other blood types show less conclusive relationships.

#### DISCUSSION

The eating disorders are a group of conditions in which person suffer from less or over intake of food and the relieving it vomiting, taking purgatives and dieting.<sup>21</sup> it is a mental disorder that effect the eating habits resulting in the complications involving different systems of the body.<sup>22</sup> The investigation into ABO/Rh blood group frequencies in normal versus SCOFF-positive females in Hyderabad, Pakistan, unfolds a nuanced perspective on the potential interconnections between blood group distribution and the prevalence of eating disorders in this particular demographic.

According to the study, Rh-positive (Rh+) blood groups exhibit a higher prevalence in both normal and SCOFF-positive females, with frequencies of 51.43% and 39.52%, respectively. Nevertheless, the statistical analysis suggests a negligible association between Rh blood type and SCOFF positivity. The distribution of ABO blood types reveals distinct patterns in normal and SCOFF-positive males. Blood Group B is the predominant allele at 38.7%, followed by O at 28%, A at 23.7%, and AB at 9.4%. Despite variations in allele frequencies between the two groups, the statistical analysis indicates that ABO blood types alone may not be conclusively linked to

the presence of eating disorders in the studied male cohort.

Integrating ABO and Rh blood types in the analysis reveals potential associations between A+, B+, and O+ blood types and SCOFF positivity. Notably, Blood Group O+ stands out with an odds ratio of 1.17, indicating a potential link with SCOFF positivity. However, the lack of statistical significance in other instances highlights the need for more detailed analyses and cautious interpretation.

In summary, the study findings highlight the intricate nature of the relationship between blood group distribution and eating disorders in males. While certain trends may emerge, the absence of statistical significance in many instances underscores the complexity of these associations. Further research should explore additional factors contributing to the interplay between blood group types and susceptibility to eating disorders, fostering a more comprehensive understanding in the specific context of the studied population in Hyderabad, Pakistan.

#### CONCLUSION

The study concludes that menopausal women and women with normal menstrual cycles in Hyderabad, Pakistan, currently have a higher prevalence of ABO typing. The review couldn't track down any distinction in that frame of mind with the reference to feminine/menopausal status of members. As a result, the information may have an impact not only on blood banking and transfusion but also on women's menopausal status.

**ETHICS APPROVAL:** The ERC gave ethical review approval.

**CONSENT TO PARTICIPATE:** written and verbal consent was taken from subjects and next of kin.

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**AUTHORS' CONTRIBUTIONS:**

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

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