



# Correlation Between Excessive-Water Phobia and Blood Groups



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## Abstract

Blood groups are determined based on antigens present on the surface of red blood cells. The positive and negative blood groups are checked on the basis of presence of Rh factor. Aquaphobia is generally a fear of excess water. The phobic person feels restless when exposed to water. The purpose of this study is to check the relation between the excessive-water phobia and the blood groups of individuals. To conduct this study, 100 samples of students of Institute of Molecular Biology and Biotechnology, Bahaudin Zakariya University, Multan, Pakistan were collected. These blood samples were then tested to determine their blood groups. Then the relation is determined by knowing that these persons are phobic to excess water or not. The results obtained showed that there is no correlation between blood groups either positive or negative with the excessive-water phobia.

**Keywords:** Blood groups; Rh factor; Aquaphobia; Blood test; Exposure therapy; Heartbeat rate; Anti-convulsant; Inheritance trait; Agglutination; Genetic; Biotechnology; Molecular Biology

## Introduction

Aquaphobia is defined as a phobia which includes a fear from excess of water. This fear can be due to some bad experience or due to any genetic reasons. This can be cured by some therapies like an exposure therapy. In this therapy, patients are exposed to excess of water to see the level of fear. Then they are treated accordingly. If they get panic attacks or show other symptoms like increase in heartbeat rate, then they are treated with virtual reality. In virtual reality, the person is indirectly exposed, like virtual exposure is given. This exposure is given by using some machines. Some medications are also used to treat the symptoms of this fear like anxiety and depression. Anti-depressants are given to patients to overcome the fear. Anti-convulsant drugs are used to treat anxiety [1]. SSRI's are also taken to control level of fear. In 1900, Karl Landsteiner was the scientist who had discovered an ABO blood group system. He discovered three types of this system: A, B, and O [2].

He identified it during his experiment when he found that few samples agglutinate while others don't. Genes for this type of blood group system are present on chromosome # 9. This ABO blood group system is based on four antigens: A, B, O, and AB [3]. These antigens are present on the surface of red blood cells. These antigens are also present in some tissues and in the

body fluids. Individuals having O blood group are the universal donors. Those having AB blood group are universal recipients. In serum of AB, anti-A and anti-B antibodies are not present. While in serum of O, both anti-A and anti-B antibodies are present. These two A and B antigens are inherited in a codominant fashion. This inheritance trait of this system can be used for checking paternity and in forensic science too.

## Material and Methods

### Material required

Blood sample, blood typing kit, anti-A antibodies, anti-B antibodies, anti-D antibodies.

### Sample collection

Firstly, the skin was cleaned with alcohol pad before pricking. The blood samples of 100 individuals were collected by pricking the finger of the individual.

### Blood Group Test

Then the few drops of blood were placed on all patches. Each patch had different antibodies on it. Anti-A, anti-B and anti-D patches were present on the card and a control patch also. Different dyes are also present on every patch. Anti-A antibody

also has dye of green color. Anti-B patch has yellow color dye. Anti-D patch has blue color dye on it. A few drops of blood were placed in each patch. Agglutination in anti-A patch showed blood type A. Agglutination in anti-B patch showed B blood group

Figure 1. Agglutination in the third patch which was anti-D showed that blood is Rh positive. In this way, blood groups of all samples were checked.

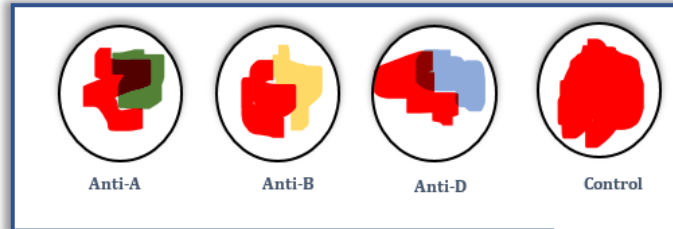


Figure 1: Blood typing kit.

Results and Discussion

Table 1 shows the blood groups of all males and females having excessive-water phobia and those not having excessive-water phobia. According to the results as shown in table 2, 93.4% of males having excessive-water phobia had positive blood groups. 92.85% of females have phobia and their blood

group was positive. While, 100% of males have positive blood groups but are not phobic to excessive water. In the same way, 91.30% of females are not afraid of excess water and have positive blood groups Table 2. These results showed that there is no correlation between excess water phobia and the positive and negative blood groups.

Table 1: Relation of excess water phobia with blood groups.

Gender	Excess water phobia								No excess water phobia							
	Positive				Negative				Positive				Negative			
Blood groups	A <sup>+</sup>	B <sup>+</sup>	AB <sup>+</sup>	O <sup>+</sup>	A <sup>-</sup>	B <sup>-</sup>	AB <sup>-</sup>	O <sup>-</sup>	A <sup>+</sup>	B <sup>+</sup>	AB <sup>+</sup>	O <sup>+</sup>	A <sup>-</sup>	B <sup>-</sup>	AB <sup>-</sup>	O <sup>-</sup>
Male	3	5	4	2	0	0	1	0	0	3	1	2	0	0	0	0
Female	10	25	12	5	0	2	2	0	4	9	2	6	1	0	0	1

Table 2: Relation of excess water phobia with positive blood groups.

Gender	Excess water phobia		No excess water phobia	
	Positive	Negative	Positive	Negative
Male	93.40%	6.60%	100%	0%
Female	92.85%	7.15%	91.30%	8.70%

Conclusion

It is concluded that there is no relation of excess water phobia with the excess water phobia. The percentage of positive blood groups is high in persons having excessive water phobia and those not having such phobia.

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