

Association of ABO blood types with psychiatric disorders: Potential biomarkers of genetic susceptibility?

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BACKGROUND

- ❖ It is now widely recognized that genetic risk factors can predispose to the development, and differences in presentation, of various neuropsychiatric disorders¹⁴
- ❖ There have been multiple associations made between ABO blood type and an individual's susceptibility to disease. For example, gastric cancer was found to be more common in type A individuals⁵
- ❖ Previous studies have investigated how blood type may influence an individual's mental status. A 2019 study by Xu et al. considered that individuals with certain ABO blood types may be more susceptible preoperative anxiety, and found that blood type AB had higher anxiety scores
- ❖ This study reviews the literature investigating possible associations between ABO blood types and affective disorders such as major depressive disorder, bipolar disorder, or schizophrenia

METHODS

- ❖ PubMed and Google scholar online databases were used to search terms such as "ABO blood type", "depression", "bipolar disorder", "anxiety", "schizophrenia", "affective disorders", or "psychiatric disorders." There were no restrictions placed on the publication date
- ❖ 30 abstracts were screened, 21 full text articles were reviewed, and 18 were finally included

RESULTS

- ❖ There were 18 reports that met the inclusion criteria, and the data of each are displayed in Table 1.
- ❖ These studies showed that some associations were found between ABO blood type and occurrence of different psychiatric disorders.
- ❖ However, there were multiple controversial results among these studies, such as Gavert et al finding no correlations between ABO blood type and Major Depressive Disorder.

Table 1: Results of search

Source	Sample	Results
Irvine et al, 1965	n-668 Intra-hospital control group	Observed trend: AB and B more prevalent in schizophrenia group O most prevalent in involuntal melancholia subgroup
Masters, 1967	n= 500 Control = 652	Group O blood associated with manic-depressive psychosis.
Czechowicz et al., 1972	n= 97 schizophrenics inpatient Control = 1,071	Fewer group O in schizophrenic sample
Mendlewicz et al., 1974	n= 383 inpatient Control = 265	Less group A and more group O in manic depressive group More group A and less group O in schizophrenic group
Peterfy et al., 1976	n= 102 outpatient schizophrenia Control = 4000 nonpsych inpatients	No statistically significant correlation was found between blood group and schizophrenia
Shapiro et al., 1977	n= 66 manic-depressive outpatient Control = 12,123	Bipolar patients had more Type O blood and less Type A blood when compared to both the unipolar patients
Beckman et al., 1978	n= 219 affective disorder patients Control = 59, 862	B factor seen more among bipolar and unipolar patients in comparison to nonpsychotic and unclassifiable patients.
Rinieris et al, 1979	n= 190 Control = 304,317	More type O and Less type A in bipolar and unipolar group. Type A more common in involuntal depression
Rhimer et al, 1981	n=246 inpatient Control = 6000	Type A seen more often in patient group. Differences also noted among bipolar subgroups
Rinieris et al, 1982	n=853 Control = 600	No significant differences noted between ABO blood type distribution in the sample of those with schizophrenia.
Lavori et al, 1984	n= 79 seeking psychiatric evaluation Control = 141,774	No statistically significant associations between diagnosis and blood type.
Takazawa et al., 1988	n=118 affective disorder inpatient Control = 212	The B blood group was observed significantly more in the patient sample
Singg et al., 2001	n= 108 volunteers Control samples from local blood bank	Blood type O showed a significantly higher mean depression score compared to Type A and AB/B groups.
Alexander et al, 2014.	n=495 Control = 587	Blood type AB was linked with a higher incidence of cognitive impairment.
Vasan et al, 2015.	n=1,598,294 Numbers not given for control sample	No significant association was seen between blood type and risk of developing dementia. Significant decrease in risk for those with blood type A, in individuals over 70.
Pisk et al, 2019	n=156 inpatient Control = 303	Blood type AB was more prevalent in the psychiatric group
Garvart et al, 2021	n=37,208 Numbers not given for control sample	No statistically significant correlations were found between ABO blood type and Major Depressive Disorder.
Hoang et al., 2021	n= 1,216 staff members	No statistically significant differences in the prevalence of depressive symptoms among different blood types.

CONCLUSIONS

- ❖ It is still controversial whether ABO blood types have some sort of correlation in various psychiatric disorders.
- ❖ Multiple studies found that there were no significant correlations between blood type and a specific disorder. In particular, the study by Gavert et al. stands out, in that this study had one of the largest sample sizes and found no correlation between Major Depressive Disorder and ABO blood type, while 3 other studies found significant results^{2, 5, 16, 18}
- ❖ Limitations included skewed sample groups, data collection errors due to self reported results, and limited sample sizes.
- ❖ An additional limitation is that the definition of a psychiatric disorder used by a specific study may not match the criteria used in other studies, altering participant grouping and results.¹²
- ❖ The results of these 18 studies show that there is still much controversy regarding the impact of ABO blood types on psychiatric disorders. More studies with larger samples are needed

REFERENCES

