

Relationship between the nature of the symptomatology in schizophrenia and the type of manual dominance

Zhivko Apostolov

Varna University of Medicine, Bulgaria.

*Corresponding Author: Zhivko Apostolov, Varna University of Medicine, Bulgaria.

Received date: March 22, 2024; Accepted date: April 08, 2024; Published date: May 24, 2024

Citation: Zhivko Apostolov., (2024), Relationship between the nature of the symptomatology in schizophrenia and the type of manual dominance, *Clinical Research and Studies*, 3(3); DOI:10.31579/2835-2882/047

Copyright: © 2024, Zhivko Apostolov. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Background and objectives: Despite years of research, there is still no definitive evidence of a link between the clinical manifestations of schizophrenia and atypical asymmetry, and a consistent model of association is lacking.

Methods: We examined 70 men diagnosed with schizophrenia according to the criteria of ICD-10 and DSM-IV, using the "Brief Psychiatric Rating Scale" (BPRS).

Results: Our analysis revealed several statistically significant correlations between the coefficient of right-hand dominance and symptoms from the BPRS.

Conclusion: Positive symptoms are associated with right-handedness and more severe exacerbations of the illness, while affective symptoms in non-right-handed patients may be associated with a more favorable course.

Keywords: schizophrenia; laterality

Introduction

Schizophrenic disorders are characterized by fundamental deviations in thinking and perceptions, as well as inappropriate or blunted affect. While clarity of consciousness and intellectual capacity are usually retained, cognitive deficits may develop over time. These disorders affect fundamental functions that contribute to a sense of individuality, uniqueness, and independence in healthy individuals. Common symptoms of schizophrenia include echo of thought, delusions, hallucinations, disorganized speech, and catatonic behavior, among others [1].

To aid in the understanding of this complex disease, clinicians often categorize symptoms into two groups: positive and negative symptoms. Positive symptoms encompass delusions, hallucinations, disorganized speech, and bizarre behavior, representing distortions or intensifications of normal cognitive or emotional functions. Negative symptoms, on the other hand, reflect the loss or decline of normal mental functions and include avolition, blunted affect, and anhedonia [2].

Kurt Schneider's concept of "first-rank symptoms" has significantly influenced the conceptualization of schizophrenia, defining specific types of delusions and hallucinations, such as thought insertion or withdrawal, delusions of control, and commentary voices [2, 3]. Despite years of research, a definitive link between the clinical manifestations of schizophrenia and atypical asymmetry has yet to be established, and a consistent model of association is lacking. Some studies have explored the relationship between formal thought disorder and atypical manual

dominance in schizophrenic patients [4-11]. However, the findings have been inconsistent.

Materials and Methods

We examined 70 men diagnosed with schizophrenia according to the criteria of ICD-10 and DSM-IV, excluding those with a history of specific medical conditions or personality disorders. The participants were between 19 and 60 years of age and were hospitalized in the psychiatric clinics of the University Multi-Profile Hospital for Active Treatment St. Marina - Varna. The assessment was conducted using the Brief Psychiatric Rating Scale (BPRS), a scale for general psychopathology that includes 24 items [12].

Results

Our analysis revealed several statistically significant correlations between the coefficient of right-hand dominance and symptoms from the BPRS (Table 1). As the coefficient of right-hand dominance decreases (indicating a tendency toward non-right-handedness and left-handedness), levels of anxiety and depression increase. The symptoms "anxiety" and "depressive mood" were significantly higher in non-right-handed patients. Additionally, right-handed patients showed higher scores on the uncooperativeness scale, positive subscale, and hostility scales. Moreover, the values for "hallucinations" were significantly higher in right-handed patients.

Symptom	Values of the correlation coefficient (<i>r</i>)	Probability Value (<i>p</i> -value)
"Anxiety"	$r = -0.317$	$p = 0.03$
"Depressive mood"	$r = -0.416$	$p = 0.004$
"Uncooperativeness"	$r = 0.315$	$p = 0.035$
"Positive subscale"	$r = 0.317$	$p = 0.034$
"Hostility"	$r = 0.258$	$p = 0.027$

Table 1: Correlations between the coefficient of right-hand dominance and symptoms from the BPRS

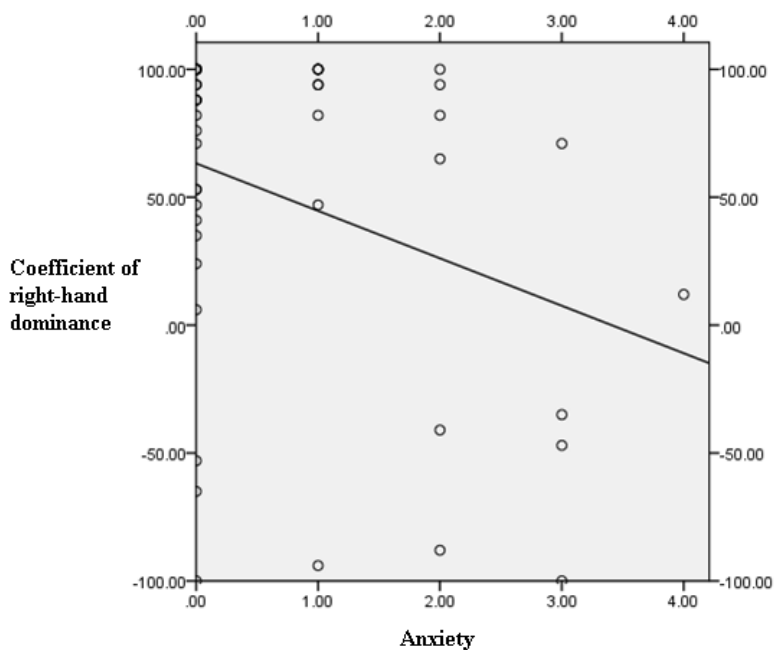


Figure 1: Correlation between the coefficient of right-hand dominance and anxiety

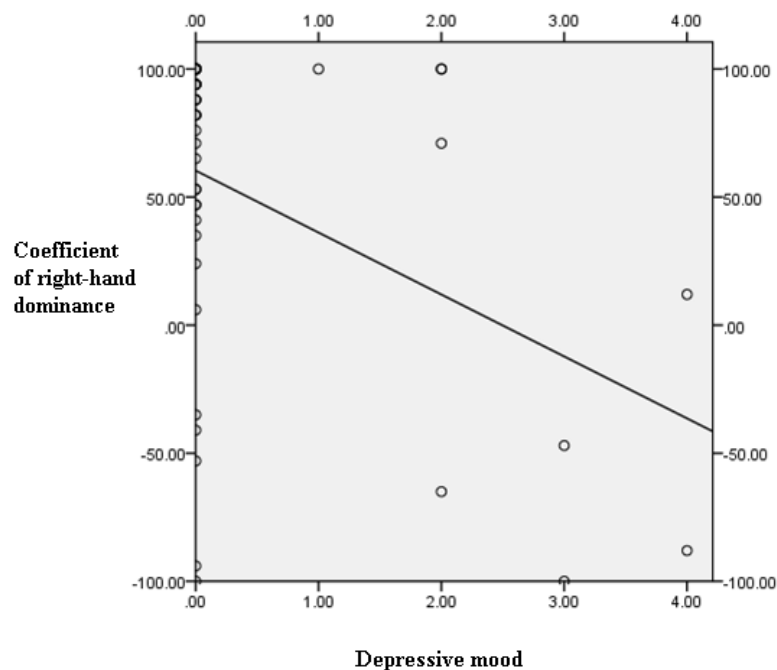


Figure 2: Correlation between the coefficient of right-hand dominance and depressive mood

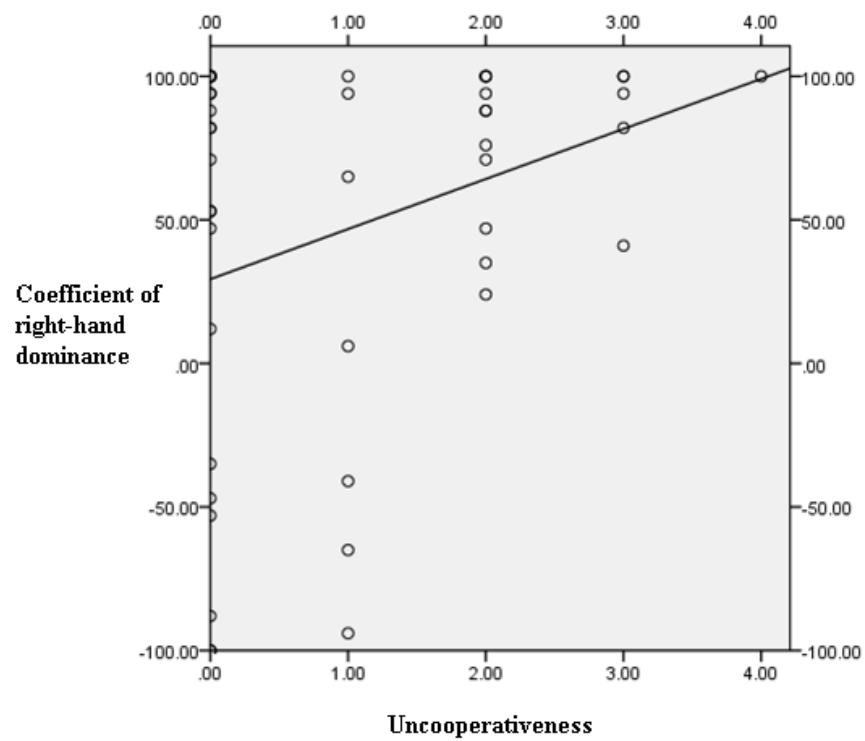


Figure 3: Correlation between the coefficient of right-hand dominance and uncooperativeness

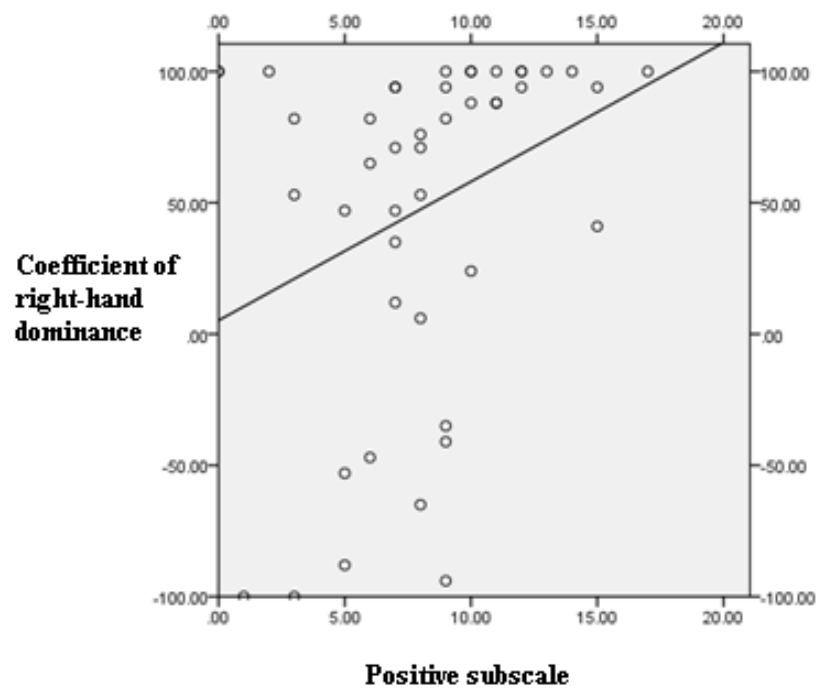


Figure 4: Correlation between the coefficient of right-hand dominance and positive subscale

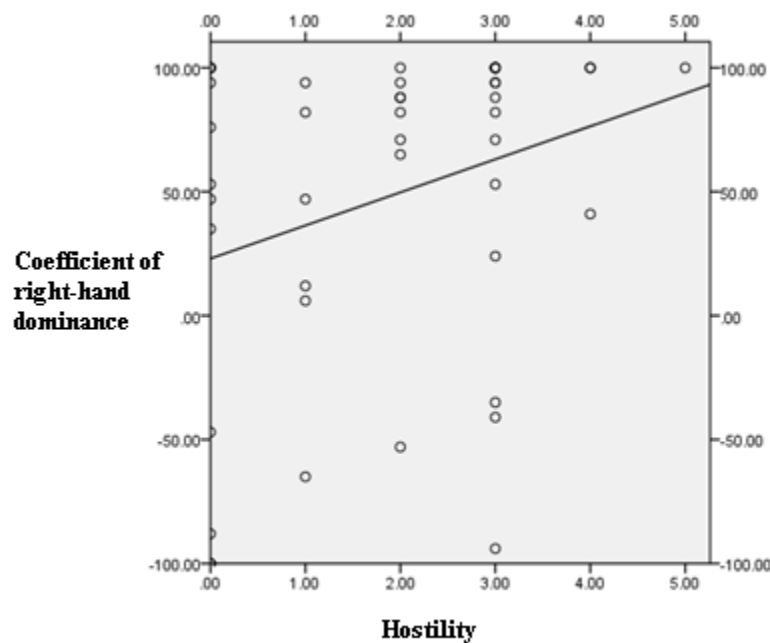


Figure 5: Correlation between the coefficient of right-hand dominance and hostility

Discussion

Two hypothetical explanations can be proposed for these observations. First, disturbances in the normal interaction between brain hemispheres may play a role. Studies have shown that left-sided administration of sodium amytal (resulting in transient anesthesia of the left hemisphere) leads to pessimistic experiences and negative emotions, while right-sided administration (resulting in right hemispheric inactivation) leads to euphoric reactions and positive emotions. These mood changes are considered manifestations of the release of one hemisphere from contralateral inhibitory effects, which can also be observed in patients with unilateral brain damage.

The second explanation suggests that the findings in non-right-handed individuals may reflect the characteristics of their premorbid personality. Previous studies have shown that healthy left-handed individuals exhibit higher levels of depression, anxiety, and neuroticism. They also tend to display greater emotional instability and increased behavioral inhibition system (BIS) activity, which predisposes them to anxiety [13-18].

Conclusion

our findings indicate that positive symptoms in schizophrenia are associated with right-handedness and more severe exacerbations of the illness. On the other hand, affective symptoms observed more frequently and pronouncedly in non-right-handed patients may be linked to a more favorable course of the illness. These results contribute to the understanding of the relationship between the nature of symptomatology in schizophrenia and manual dominance, highlighting the potential influence of brain hemispheric interactions and premorbid personality traits.

Further research is warranted to validate and expand upon these findings, considering larger sample sizes, diverse populations, and additional assessment measures. Understanding the underlying mechanisms behind the observed associations can provide valuable insights into the etiology and progression of schizophrenia, leading to improved diagnostic and therapeutic approaches.

Acknowledgments:

We would like to acknowledge the participants of this study for their cooperation and the University Multi-Profile Hospital for Active Treatment St. Marina - Varna for providing the necessary facilities and support.

Conflict of Interest:

The authors declare no conflicts of interest.

Funding details:

none

Ethics Approval and Consent to Participate:

Approved by the Commission for Scientific Research Ethics at Medical University – Varna “Prof. Dr. Paraskev Stoyanov”.

Helsinki Declaration has been followed for involving human subjects in the study and written informed consent has been taken from the patients.

References:

1. World Health Organization. ICD-10: International statistical classification of diseases and related health problems: Tenth revision, 2nd ed. World Health Organization. 2004.
2. Buchanan R, Carpenter W.(2005). Concept of schizophrenia. In: Sadock BJ, Sadock VA, editors. Kaplan & Sadock's Comprehensive textbook of Psychiatry. 8th ed. Baltimore: Lippincott & Wilkins;
3. Verdoux H, Liraud F, Droulout T, Theillay G, Parrot M, et al.(2004). Is the intensity of Schneiderian symptoms related to handedness and speech disorder in subjects with psychosis? *Schizophr Res.* 67:167-173.
4. Dragovic M, Hammond G. (2008).A joint occurrence of atypical behavioral lateralization and schizophrenia: coincidental or causative? *Review of Psychology.* 15:45-56.
5. Taylor P, Dalton R, Fleminger JJ. (1982).Handedness and schizophrenic symptoms. *Br J Psychol.* 55(3):287-291.
6. Taylor MA, Amir N.(1995). Sinister psychotics: Left-handedness in schizophrenia and affective disorder. *J Nerv Ment Dis.* ;183:3-9.
7. Dolfus S, Buijsrogge JA, Benali K, Delamillieure P, Brazo P.(2002). Sinistrality in subtypes of schizophrenia. *Eur Psychiatry.* 5:272-277.

8. Wright L, Hardie SM, Wilson K.(2009). Handedness and behavioral inhibition: left-handed females show most inhibition as measured by BIS/BAS self-report. *Pers Individ Dif.* 46:20-24.
9. Grabowska A, Herman A, Nowicka A, Szatkowska I, Szlag E. (1994). Individual differences in the functional asymmetry of the human brain. *Acta Neurobiol Exp.* 54:155-162.
10. Clements AM, Rimrod SL, Abel JR, Blankner JG, Mostofsky SH, et al.(2006). Sex differences in cerebral laterality of language and visuospatial processing. *Brain Lang.* 98(2):150-158.
11. Colasanti A, Paletta S, Moliterno D, Mazzochi A, Mauri M, et al.(2010). Symptom dimensions as predictors of clinical outcome, duration of hospitalization, and aggressive behaviors in acutely hospitalized patients with psychotic exacerbation. *Clin Pract Epidemiol Ment Health.* 6:72-78.
12. Overall J, Gorham D.(1962). The Brief Psychiatric Rating Scale. *Psychol Rep.* 10:799-812.
13. Silberman EK, Weingartner H.(1986). Hemispheric lateralization of functions related to emotion. *Brain Cogn.* 5:322-353.
14. Elias LJ, Saucier DM, Guylee MJ.(2001). Handedness and depression in university students: a sex by handedness interaction. *Brain Cogn.* 46(1-2):125-129.
15. Ramadhani M.(2006). Pathological left-handedness revisited: origins and later life health outcomes [PhD Thesis]. Utrecht: University of Utrecht;
16. Hicks R, Pellegrini R.(1978). Handedness and anxiety. *Cortex.* 14(1):119-121.
17. Davidson R, Schaffer C.(1983). Frontal and parietal electroencephalogram asymmetry in depressed and nondepressed subjects. *Biol Psychiatry.* 7:753-762.
18. Rebrova N, Chernysheva M.(2004). Functional interhemispheric asymmetry of the human brain and mental processes. Sankt Petersburg: Rech;

Ready to submit your research? Choose ClinicSearch and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At ClinicSearch, research is always in progress.

Learn more <https://clinicsearchonline.org/journals/clinical-research-and-studies->



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.