IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 24, Issue 1 Ser. 7 (January. 2025), PP 42-45
www.iosrjournals.org

Somatic Passivity: Evaluation Of Urinary Dopamine And Norepinephrine Absorbance In Schizophrenic Patients

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Abstract
Schizophrenia along with other psychiatric disorders, is one of the severe disorders known to have existence in every society and culture around the globe. A patient with schizophrenia may experience bodily sensations imposed by external agents. Besides all other conditions which are faced by schizophrenic patients a difficulty creating circumstance is somatic passivity. Among a major portion of schizophrenic subjects this condition creates obstacles in the way of living of the individual. The researcher attempted to figure out the severity through comparing dopamine and norepinephrine levels of schizophrenic individuals having somatic passivity and not having the symptom. The sample number was 110 and simple random type of probability sampling was used in the research. Only confirmed schizophrenic subjects who were diagnosed by qualified psychiatrists were included in the research. Urine sample was collected from these subjects and the absorbance of these two neurotransmitters was measured by spectrophotometry using WPA Biowave DNA Spectrophotometer. The researcher found the mean absorbance was higher for both the neurotransmitters among schizophrenics having the symptom somatic passivity. There was significance of 0.001 for dopamine and 0.05 for norepinephrine.
Keyword: *Spectrophotometric Evaluation; Dopamine; Norepinephrine; Schizophrenia; Somatic Passivity*

Date of Submission: 20-01-2025 Date of Acceptance: 30-01-2025

I. Introduction

Concepts on scientific basics have fundamental view points. Effective psychiatric issues may often enable advancement in developing scientific based conceptualizations. Active presence of externalizing and internalizing effort centralized conditions are suggestive of careful organized assessments. Relationship of impulsivity to psychotic conditions and modern hypothesis regarding aspects of such relationship was and still is matter of concept developing assessments. According to basis of biopsychosocial approach, pharmacological and behavioral interventions are far enough effective in the way of well planned management techniques. Symptomatic abnormalities are an integral portion of psychiatric disease and their research will further develop the overall understanding of the neurotransmission based basics of severe psychiatric illness. The residual stage has similarity comparing to prodromal stage and individuals may face the experience of severe symptoms. The human motor system has ability of predicting proprioceptive senses, but in schizophrenia some variations take place. From the modern scientific understanding stages of progression may recurr with severity of symptoms like somatic passivity, but varied controlling effects with different generations of antipsychotics have well controlling capability over such severe symptoms. This severe mental illness makes things challenging to have normal emotional responses and progresses to further severity if not controlled adequately.

Among all the major psychiatric syndromes, schizophrenia is the most difficult to define and describe and this partly reflects the fact that, over the past hundred years, widely divergent concepts have been held by different psychiatrists in different countries. Although there is now a greater consensus, substantial uncertainties are still remaining and indeed, schizophrenia remains the best example of the fundamental issues with which psychiatry is continuing to grapple-concepts of disease, classification and aetiological aspects. (Philip Cowen, Paul Harrison, Tom Burns,2012)

Some previous works on sensory alterations based on sensorimotor processes have focused on the attempt identifying of sensory cues for limbic actions. Therefore, the concept relating agency, sensorimotor processes and the comparator model have also been applied on motor actions of the body system as a whole,

thus affecting the complete body sensorimotor process associated with self-consciousness of individuals. By using robotic device, Blanke et al. were able to induce in healthy volunteers systematic changes in illusory self body perceptions like self-touch and mild psychosis-like phenomena that depended on conflicts of sensory motor system. Especially while applying asynchronous sensorimotor stimulation in between superior limb motor actions and tactile feedback on the back, participants reported somatic passivity and the participating subjects felt being in a presence of a non-existing entity, phenomenologically resembling experiences of passivity, (Pavo Orepic et al., 2021).

In a study, it was found that patients with somatic passivity showed predominance of narcissistic and dependent personality pattern with paranoid ideas. In case of narcissistic personality disorder, the fear relating to self-esteem regulation and risk of falling short can underlie and motivate ranges of behaviour. High achievements may become motivated by interpersonal ignorance and distancing by fear of being humiliated, or being overpowered and losing control. Observations and studies raise several questions related to the interaction between identifying, processing and controlling fear regarding perspective of narcissistic self-regulation. In the study, the result of Narcissistic personality pattern found in schizophrenia with somatic passivity, made volition, might find its source in the fear of such personality where an individual needs to be controlled by external force to lose control. (Namrata Chakraborty, 2016)

Sometimes it is difficult to differentiate somatic passivity from unexplained medical complaints, in the sense that local pathology in the thorax or the abdomen, for instance, can be either overlooked or may remain undiagnosed despite current state-of-the-art procedures. Examples of somatic hallucinations are the sensation of having a lump in the throat that is not present in the location, of animals crawling through the body, of a plant scraping its pointed leaves against the inside of one's skull, or bones apparently increasing or decreasing in their size. The literature on somatic hallucinations is even less prolific than that on tactile hallucinations. Whenever such passivity have been documented at all, it is mostly in combination with other symptoms. Somatic hallucinations are pathophysiologically mainly attributed to activity in the secondary somatosensory cortex, posterior parietal cortex and also in the limbic regions. (Anastasia Lim and Jan Dirk Blom, 2021)

Sarah Pirio Richardson et al (2020) performed a research on Timing of the Sense of Volition in Patients With Schizophrenia. They recorded surface electromyography to determine the time of actual movement, and electroencephalography to record brain potentials associated with movement in their study. Their results showed a significantly reduced interval between the reported M and W among schizophrenic patients with respect to the healthy volunteers ($p < 0.05$). Patients did not report a significant difference in the timing of W at 19 ms prior to movement onset and M at 7.4 ms prior to movement onset ($p > 0.05$), whereas the control group experienced a time W at 100 ms prior to movement onset and this differed significantly from their time M at 19 ms prior to movement onset ($p < 0.01$). (Sarah Pirio Richardson et al., 2020)

Aim Of The Research:

Previously no notable research work was done on dopamine and norepinephrine activity among schizophrenic subjects especially having somatic passivity measuring the absorbance of these two neurotransmitters. So the research was performed with the aim of acquiring some conclusive findings for clearing concept of basic relations of somatic passivity in schizophrenia with levels of these neurotransmitters.

Specific hypothesis:

Dopamine and norepinephrine has role in schizophrenia but it is needed to figure out how much role they have in the symptom of somatic passivity.

Significance of this research:

Somatic passivity is one of the severity expressing symptom of schizophrenia. By finding the outcome of this research it will be easier in development of symptomatic concept of bodily symptoms in schizophrenia and contributing in further prognostic values relating to sophisticated spectrophotometric techniques in evaluating neurotransmitter's role in the progression of severity symptoms.

Limitation of the study:

All patients who were confirmed schizophrenic by qualified psychiatrists did not show interest in participating in this research. Only the confirmed schizophrenic subjects who agreed after explanation about the research and counseling about the whole pattern of research participated.

Schizophrenic subjects with other associated medical severities couldn't participate in this research due to their severity of the ongoing condition.

Implication of the study:

The findings of this research will be important for justification of further exploration on this research area. The findings in this research may act as a key on the way of future attempts regarding the research on neurotransmitter roles in somatic passivity among schizophrenic individuals.

II. Methodology

This was a comparative study performed with sample size of 110 using simple random type of probability sampling technique. The sample characters included confirmed schizophrenic subjects who have the symptom of somatic passivity and who do not have the symptom. The comparison was performed between schizophrenic subjects with somatic passivity and subjects without somatic passivity.

Data for this research was collected by noting down the measurement of absorbance of each and every participating schizophrenic subjects. Urine samples were collected using test tubes for measurement of dopamine and norepinephrine absorbance and the urine samples were taken to laboratory to set them in the spectrophotometer and measure the absorbance of these two neurotransmitters. The absorbance of all subjects was noted down and the data entry was performed in sequential manner.

In an attempt of significant findings with the research, the mean was measured and t test and standard deviation was also done.

Intruments: Spectrophotometer (WPA Biowave DNA), 2.5 ml Cuvettes (Transparent on all four sides), Dropper, Distilled Water (For comparing with zero absorbance), Ice box, Test tubes.

III. Results

Comparison of Mean and standard deviation of Dopamine and Norepinephrine absorbance of schizophrenic subjects with and without somatic passivity:

	Somatic Passivity	N	Mean	SD	df	t	sig
Dopamine	With somatic passivity	41	1.122	o.575	108	3.667	0.001
	Without somatic passivity	69	0.782	o.398			
Nor Epinephrine	With somatic passivity	41	0.566	0.385	108	2.245	0.05
	Without somatic passivity	69	0.407	0.343			

In the comparison of schizophrenic subjects with and without somatic passivity, the mean absorbance of both dopamine and norepinephrine were higher among subjects with somatic passivity. SD was done and df was 108.

After performing t test the value was 3.667 for dopamine and 2.245 for norepinephrine. Significance was .001 for dopamine and .05 for norepinephrine. Some expected significance was found from the result.

IV. Discussion

Findings in this research projects that there are differences in the mean scores of urinary dopamine and norepinephrine absorbance of schizophrenic subjects consisting of the symptom somatic passivity. But in the comparison of mean scores it varied separately in case of dopamine absorbance and norepinephrine absorbance.

Scientific researches are key conclusion establishing processes. Laboratory based researches relating schizophrenia are still not adequately available but the researcher attempted through decisive procedures. Urine samples were collected by receiving informed consent from all subjects using an informed consent form, ensuring them the research is painless and will not cause any hazards. The participating subjects willfully took part in the research. Any subject without complete confirmation as schizophrenic was totally excluded from participation in the research work.

In this research after comparison of schizophrenic subjects with and without somatic passivity, both mean dopamine and norepinephrine absorbance was higher among subjects with somatic passivity. Standard deviation df was 108 after measurement. After performing T test result was 3.667 for dopamine and 2.245 for norepinephrine. For dopamine significance was .001 and for norepinephrine significance was .05

V. Conclusion

From this research it was proved and we can come to the conclusion that dopamine and norepinephrine although is higher among subjects with schizophrenia, the levels are much higher in subjects who have the symptom somatic passivity. As significance was found after the result such conclusion is more establishing. After the laboratory based scientific research we can come to the conclusion that dopamine and norepinephrine plays role in making the symptomatic outcome of somatic passivity as the mean absorbnce was higher among subjects with the clinical presentation and there was some significance found. The total ideology relating somatic passivity in schizophrenia and severity of consequences was materialized from this research as these two neurotransmitters have high power of symptomatic expression in schizophrenics.

VI. Recommendations

1. Patients of schizophrenia having the symptom somatic passivity, needs to be dealt with developed laboratory based investigations in the aim to bring best prognosis.
2. Among all patients with schizophrenia the patients having somatic passivity should be dealt with priority as the symptom proved to be difficulty creating and the levels of dopamine and norepinephrine was found raised
3. Further spectrophotometric evaluations of neurotransmitters has to be performed to identify the severity through symptoms.

References:

[1] Philip Cowen, Paul Harrison, Tom Burns. Shorter Oxford Textbook of Psychiatry. 2012; 6:255
[2] Pavo Orepic Et Al. Sensorimotor Conflicts Induce Somatic Passivity And Louden Quiet Voices In Healthy Listeners. Schizophrenia Research. 2021;231:171
[3] Namrata Chakraborty. Probable Association Between Personality Patterns And Experiences Of Passivity In Schizophrenia. The International Journal Of Indian Psychology. 2016; 4: 162
[4] Anastasia Lim And Jan Dirk Blom. Tactile And Somatic Hallucinations In A Muslim Population Of Psychotic Patients. Frontiers In Psychiatry. 2021; 12:2
[5] Sarah Pirio Richardson Et Al. Timing Of The Sense Of Volition In Patients With Schizophrenia. 2020; 14: 1