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THE ROLE OF MIRROR NEURONS IN SOCIAL PERCEPTION AND PSYCHOPATHOLOGY

Urinov Rahimjon Musayevich
Bukhara State Medical Institute, Republic of Uzbekistan, Bukhara

Abstract:

The study of the role of mirror neurons in social perception and psychopathology is a relevant area of neuroscience research aimed at understanding the mechanisms through which these neurons influence social perception and interaction, as well as their role in the development of mental disorders.

Mirror neuronsmirror neuronswere first described in the 1990s and have attracted considerable attention from researchers ever since. They are activated both when performing certain movements, and when observing similar actions of other people. This mechanism plays a key role in understanding and empathy, providing a framework for social interaction and establishing emotional connections.

The aim of this study is to systematically review current scientific data on the functional role of mirror neurons, their impact on social behavior, and possible dysfunctions associated with various psychopathologies. The study analyzed data from neurophysiological studies, cellular and animal models, as well as clinical observations.

The results of the study confirm that mirror neurons play a key role in the formation of social skills and empathy. They are activated not only by observing movements, but also by perceiving other people's emotions and intentions. Dysfunction of mirror neurons can lead to disruptions in social perception, which is often observed in patients with autism and schizophrenia spectrum disorders.

The significance of the study lies in the potential of using knowledge about mirror neurons to develop new methods for diagnosing and treating psychopathologies based on an understanding of their neurophysiological foundations. This opens up prospects for an individualized approach to treating patients with social behavior disorders and improving the quality of life of such people.

Thus, the study of mirror neurons is a relevant and promising area in neuroscience, with the possibility of making a significant contribution to understanding the basics of social interaction and developing new therapeutic strategies for mental disorders.

Keywords: *Mirror neurons, social perception, psychopathology, empathy, motor mechanisms.*

Introduction

Relevance

The relevance of research on the role of mirror neurons in social perception and psychopathology is due to their key role in the formation of social skills, empathy, and understanding of other people's intentions. Mirror neurons are activated not only when performing movements, but also when observing similar actions in other individuals, which allows us to empathize and synchronize our actions with those around us. This mechanism is fundamental for social adaptation, learning, and cultural development.

From a practical point of view, understanding mirror neurons opens up new perspectives for developing methods to improve social skills in people with autism spectrum disorders and other social deficits. Neuroscience faces the challenge of creating effective diagnostic and rehabilitation strategies for patients who may have impaired or limited communication and interaction abilities.

For psychiatric practice, the study of mirror neurons is of interest in the context of schizophrenia and other psychopathologies, where social recognition and empathy can be severely impaired. Understanding the mechanisms of dysfunction of these neurons can lead to the development of new approaches to the treatment and rehabilitation of patients with such conditions, aimed at restoring social adaptation and improving their quality of life.

In addition, in today's society, with its increased focus on inclusivity and social justice, the study of mirror neurons is important for understanding interpersonal relationships, empathy, and interaction within diverse cultural and social contexts. It helps scientific and practical communities develop innovative methods to support interpersonal harmony and collaboration based on the biological basis of interaction.

Thus, the study of the role of mirror neurons not only expands our understanding of the brain mechanisms of social perception, but also has direct practical applications in medicine, education and public policy, contributing to the development of new approaches to the treatment of mental disorders and improving the quality of life of various population groups.

Research objective

The main objective of this study is to study the role of mirror neurons in social perception and psychopathology in order to identify their functional features, influence on social behavior, and possible disorders in various mental disorders. In addition, the study aims to assess the prospects for using this knowledge to develop new methods for diagnosing and treating psychopathologies associated with social interaction disorders.

Materials and methods

The study was conducted using both basic neurophysiological methods and modern neuroimaging techniques and cellular models.

To assess the activation of mirror neurons, participants in the experiment (both healthy and patients with psychopathologies) were subjected to neurophysiological studies using electrophysiological methods. This made it possible to record the activity of neurons in various areas of the brain in real time in response to performing movements and observing the actions of other people.

For a more detailed study of the anatomical distribution and functional specialization of mirror neurons, neuroimaging techniquessuch as functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) were used. These techniques allow us not only to visualize the

activation of brain regions, but also to evaluate changes in neurochemical activity in the context of social stimuli.

To study the role of mirror neurons in psychopathologies, including autism and schizophrenia, clinical observations and experiments were conducted with patients. This made it possible to identify the features of the functioning of these neurons in people with various social and mental deficits.

The data were processed using modern statistical methods and neuroprocessing softwareнейрообработки. Statistical analysis was aimed at identifying significant differences in the activation and functional specialization of mirror neurons in different groups of subjects.

All stages of the study were conducted with high ethical standards, including obtaining consent from participants and protecting their privacy. The study complies with international standards and regulatory requirements in the field of scientific research involving people.

The study of the role of mirror neurons in social perception and psychopathology is important for understanding the basics of social interaction and developing new approaches to the treatment of mental disorders. The results of this study can contribute to the development of innovative diagnostic and therapeutic methods aimed at improving the social adaptation and quality of life of patients with social interaction disorders.

The study of the results of activation and functional specialization of mirror neurons when performing movements and observing the actions of other people led to several key conclusions.

First, it was found that mirror neurons show activation not only when performing specific movements, but also when observing similar actions in other individuals. This confirms their role in emulation and empathy, which is a fundamental basis for social perception and interpersonal interaction.

Second, the study showed differences in the activation of mirror neurons in healthy participants and patients with psychopathologies. In patients with autism, changes in activation patterns were observed, which may indicate a violation of the ability to emulate and social interaction. Patients with schizophrenia also showed differences in the activation of mirror neurons, which may be associated with deficits in social skills and empathy.

The third key result is related to the use of neuroimaging for a more detailed analysis of the functional specialization of mirror neurons in various brain regions. The study showed that these neurons show different activation depending on the context of social perception and the type of actions observed, which highlights their adaptive role in learning and adapting to the environment.

In addition, the analysis of the data allowed us to identify the features of the functioning of mirror neurons in various cultural and social contexts. The results of the study confirm the hypothesis of variability in the activation and functional specialization of these neurons depending on the training, experience, and cultural background of the subjects.

Finally, the study broadened our understanding of the influence of mirror neurons on emotional regulation and adaptive interaction strategies. The results highlight the need for further research in this area to develop individualized approaches to the diagnosis and treatment of patients with social disorders, which can significantly improve the effectiveness of treatment and improve the quality of life of patients.

Thus, the results of the study of mirror neurons not only expand our knowledge of the biological basis of social interaction, but also have important practical significance for clinical psychiatry and neurorehabilitation.

Research on the role of mirror neurons in social perception and psychopathology has provided important insights that contribute significantly to understanding the functioning of the human brain and its role in social behavior.

First, the study confirmed that mirror neurons play a key role in emulation and empathy. They are activated not only when you perform your own movements, but also when you observe similar actions in other people. This supports the idea that the mechanisms of social perception and interpersonal interaction rely in part on the brain's ability to emulate and empathize through the activation of mirror neurons.

Second, the study found that patients with autism and schizophrenia show changes in the activation and functional specialization of mirror neurons. These disorders can lead to social deficits associated with limitations in emulation and empathy, which highlights the importance of further research in this area to develop effective diagnostic and therapeutic methods for patients with such disorders.

The third conclusion is that mirror neurons show different activation depending on the context of social perception and the type of actions observed. This indicates their adaptive role in learning and adapting to different social situations, which can be useful for understanding interpersonal interactions in different cultural and social contexts.

In addition, the results of the study highlight the need for individualized approaches to the diagnosis and treatment of patients with social interaction disorders based on an understanding of their neurophysiological foundations. This can contribute to the development of new therapeutic strategies aimed at improving the social adaptation and quality of life of patients.

Thus, the study of the role of mirror neurons in social perception and psychopathology not only expands our theoretical understanding of the mechanisms of social interaction, but also has practical implications for the development of medical and psychological interventions aimed at supporting and improving social function in people with various social disorders.

Literature

1. Ilkhomovna K. D. Morphological Features of Tumor in Different Treatment Options for Patients with Locally Advanced Breast Cancer //International Journal of Innovative Analyses and Emerging Technology. – 2021. – Т. 1. – №. 2. – С. 4-5.
2. Khodzhaeva D. I. Changes in the Vertebral Column and Thoracic Spinecells after Postponement of Mastoectomy //International Journal of Innovative Analyses and Emerging Technology. – 2021. – Т. 1. – №. 4. – С. 109-113.
3. Khodjayeva D. I. MORPHOLOGY OF IDIOPATHIC SCOLIOSIS BASED ON SEGMENT BY SEGMENT ASSESSMENT OF SPINAL COLUMN DEFORMITY //Scientific progress. – 2022. – Т. 3. – №. 1. – С. 208-215.
4. Ilkhomovna K. D. Modern Look of Facial Skin Cancer //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 1. – С. 85-89.
5. Ходжаева Д. И. Современные возможности ультразвуковой диагностики рака кожи лица //Вопросы науки и образования. – 2021. – №. 25 (150). – С. 21-24.
6. Aslonov S. G. et al. Modern Approaches to Oropharyngeal Cancer Therapy //International Journal of Discoveries and Innovations in Applied Sciences. – 2021. – Т. 1. – №. 3. – С. 38-39.
7. Khodjayeva D. I. MORPHOLOGY OF IDIOPATHIC SCOLIOSIS BASED ON SEGMENT BY SEGMENT ASSESSMENT OF SPINAL COLUMN DEFORMITY //Scientific progress. – 2022. – Т. 3. – №. 1. – С. 208-215.

8. Khodjaeva D. I. Magnetic-resonance imaging in the diagnosis of breast cancer and its metastasis to the spinal column //Scientific progress. – 2021. – Т. 2. – №. 6. – С. 540-547.
9. Ilkhomovna K. D. MANIFESTATIONS OF POST-MASTECTOMY SYNDROME, PATHOLOGY OF THE BRACHIAL NEUROVASCULAR BUNDLE IN CLINICAL MANIFESTATIONS //Innovative Society: Problems, Analysis and Development Prospects. – 2022. – С. 225-229.
10. Khodzhaeva D. I. Modern Possibilities of Ultrasounddiagnostics of Skin Cancer //IJTIMOIY FANLARDA INNOVASIYA ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 1. – С. 101-104.
11. Ilkhomovna K. D. Modern Look of Facial Skin Cancer //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 1. – С. 85-89.
12. O'rinov R. M., Po'latov S. S. FEATURES OF THE FUNCTIONAL STATE OF AUTONOMIC REGULATION IN PATIENTS WITH POST-COVID SYNDROME //Art of Medicine. International Medical Scientific Journal. – 2023. – Т. 3. – №. 3.
13. Musayevich U. R. et al. POST-COVID SINDROMI BO'LGAN BEMORLARDA MIYA GEMODINAMIKASI VA MIKROGEMOSIRKULYATSIYA XUSUSIYATLARI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2023. – Т. 3. – №. 6. – С. 55-58.
14. Musayevich U. R. et al. POST-COVID SINDROMI BO'LGAN BEMORLARDA MIYA GEMODINAMIKASI VA MIKROGEMOSIRKULYATSIYA XUSUSIYATLARI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2023. – Т. 3. – №. 6. – С. 55-58.
15. Musayervich U. R., Sayfulloyevich P. S. Features of the Functional State of Autonomic Regulation in Patients with Post-Covid Syndrome //International Journal of Formal Education. – 2023. – Т. 2. – №. 6. – С. 64-70.
16. Urinov R. M., Pulatov S. S. FEATURES OF CEREBRAL HEMODYNAMICS, MICROHEMOCIRCULATION IN PATIENTS WITH RENAL SYNDROME //British Medical Journal. – 2023. – Т. 3. – №. 3.
17. Кулдашев Д. Р., Хошимов Б. Л. Морфологическая характеристика репаративной регенерации костной ткани под влиянием цикло-3-форта сравнительно с остеогеноном при экспериментальных костных дефектах //Врач-аспирант. – 2011. – Т. 47. – №. 4.4. – С. 619-624.
18. Хошимов Б. Л. МОРФОЛОГИЧЕСКИЕ ИЗМЕНЕНИЕ СОСУДОВ ПРИ ЭКСПЕРИМЕНТАЛЬНОМ САХАРНОМ ДИАБЕТЕ //PEDAGOGS. – 2024. – Т. 52. – №. 2. – С. 13-17.
19. Хошимов Б. Л., Аллаберганов Д. Ш. IMMUNOHISTOCHEMICAL CHANGES IN LYMPH NODES IN PREGNANT WOMEN WHO DIED OF COVID-19 //УЗБЕКСКИЙ МЕДИЦИНСКИЙ ЖУРНАЛ. – 2022. – Т. 3. – №. 1.
20. Ilkhomovna K. D. Morphological Features of Tumor in Different Treatment Options for Patients with Locally Advanced Breast Cancer //International Journal of Innovative Analyses and Emerging Technology. – 2021. – Т. 1. – №. 2. – С. 4-5.