### Dear editors and reviewers:

### We would like to inform you that we have included a new author, Dr. Mingjun Duan, in our research paper. Dr. Duan is a highly respected psychiatrist with extensive clinical experience working with patients with chronic schizophrenia. His expertise and insightful suggestions have significantly contributed to the major revision of our manuscript.

### Dr. Duan's primary contributions include the incorporation of key clinical insights, particularly related to the symptoms and challenges faced by schizophrenia patients. Specifically, he contributed valuable information on clinical symptoms highlighted by reviewers, such as extrapyramidal symptoms, suicide attempts and cognitive deficits, which have enriched our understanding of the patient population we are studying.

### In addition to his clinical input, Dr. Duan made important methodological contributions. In response to the reviewer’s feedback, he recommended using Generalized Estimating Equations (GEE) to perform non-parametric statistical analyses, which greatly strengthened the robustness of our results and addressed the reviewer's concerns regarding statistical validation.

### A particularly valuable aspect of Dr. Duan’s contribution lies in his theoretical input. He strongly emphasized the role of sensorimotor deficits as a central pathological mechanism in schizophrenia patients. He proposed that dance interventions could be a critical approach to improving sensorimotor integration, which, in turn, may help address cognitive deficits commonly observed in these patients. His perspective has significantly enhanced the theoretical framework of our study, particularly in relation to the reviewer’s comments on strengthening the theoretical basis of the manuscript.

### Furthermore, Dr. Duan suggested the addition of a new section titled "OUTLOOK," where he elaborates on the future potential applications of dance interventions in schizophrenia treatment. He provided insights into how future studies could build on our findings and better address the needs of patients with chronic schizophrenia, offering suggestions for further research directions and methodology.

### We believe that Dr. Duan's contributions have greatly enriched the manuscript, particularly in terms of both the clinical relevance and theoretical rigor of our work. His involvement has had a lasting impact on the manuscript's quality and has been instrumental in addressing the reviewer’s concerns.

### The following table details Dr Duan's contributions to the revision of the thesis.

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Contribution of New author

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| New Author Name | contribution | Specific details  |
| Mingjun Duan | Add clinical symptom description of schizophrenia patients  | Line 79-85: Positive symptoms in schizophrenia, such as hallucinations, delusions, and disorganized thinking, contribute to a distorted sense of reality. Negative symptoms, on the other hand, involve the reduction or absence of normal behaviors and functions, including diminished emotional expression, lack of volition, and difficulties in performing daily activities6. Cognitive impairments in schizophrenia patients affect several domains, including attention7, memory8 and executive functioning9. Together, these deficits profoundly impact the quality of life of affected individuals10,11.  |
|  | Add medication limitation in schizophrenia | Line95-103:Recent studies have also further highlighted the limited efficacy of both first- and second-generation antipsychotics in addressing negative symptom, affective symptoms and cognitive impairments for schizophrenia patients18-21.These findings underscore the limited curative effects of antipsychotic medication for chronic schizophrenia, which are further accompanied by various side effects such as extrapyramidal effects, restlessness, and metabolic disturbances22-24.Meanwhile, these side effects hindered the recovery of negative and cognitive symptoms in patients with schizophrenia, researchers found that patients who have extrapyramidal symptoms have more severe negative and moody symptoms and poorer performance on cognitive tests25-27.  |
|  | Add sensorimotor deficit as the central pathological mechanism in our study | Line106-109: Sensorimotor dysfunction in schizophrenia contribute to the overall pattern of clinical symptoms and neurocognitive deficits as possible pathophysiological mechanisms28-29. Studies have found that sensory training could improve the integration of sensorimotor information in healthy population30-31, and may further contributed to the enhancement of higher cognitive abilities.  |
|  | Provide new non-parametric analysis method  | Line 315-319:Generalized Estimating Equations (GEE) are a valuable tool for non-parametric analysis in small-sample longitudinal studies and have been widely used in various studies61-63. In our study, GEE will also be employed to complement repeated measures ANOVA in the statistical analysis of the results.  |
|  | Strengthen theory basis in discussion section | Line 418-421: Only dance intervention enhanced attention and verbal memory in chronic schizophrenia patients, reflecting that dance specifically improved integration of sensorimotor information processing, which in turn enhances cognitive function. Sensorimotor deficits are considered to be a core feature of schizophrenia and a key contributor to cognitive dysfunction83-84.Line 441-443: Overall, the complexity of dance allows for more effective integration of primary sensorimotor information, particularly in patients with schizophrenia, thereby enhancing the brain's capacity to process higher cognitive functions. |
|  | Add OUTLOOK section | Line 502-519: Dance interventions hold significant promise and economic benefits as an adjunctive treatment for chronic schizophrenia. In this study, we designed a practical and feasible dance training program tailored to patients with chronic schizophrenia. The program can be led by healthcare professionals, including doctors and nurses, who can implement it in a standardized manner without the need for professional dancers. Additionally, the simplicity of the program enhances its feasibility and potential for widespread adoption, making it suitable for broad implementation.Furthermore, it is essential to consider the individual's condition in chronic schizophrenia , as excessive exercise volume may exacerbate their extrapyramidal symptoms. Besides, a personalized approach is critical to achieving optimal treatment outcomes during dance interventions.Finally, future research should take long-term interdisciplinary collaboration into account, integrating expertise from neuroscience, psychology, and rehabilitation medicine, to deeply explore the brain mechanisms underlying dance interventions. Specifically, we should further explore the underlying brain mechanisms, focusing on the neural processes that mediate the effects of dance on cognitive function.  |