

The Effect of Vitamin D Supplementation on PANSS in Schizophrenia: A Meta-analysis of Randomized Controlled Trials

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INTRODUCTION

- Vitamin D is important in calcium balance and signaling, neuroprotection, and regulation of neurotrophic factors, neurotransmission and synaptic plasticity [1].
- Its deficiency may lead to various brain abnormalities, and was associated with mental illnesses including schizophrenia [1].
- Few recent studies had investigated the effect of vitamin D supplementation on clinical outcomes among schizophrenia patients. However, these results were inconsistent.

OBJECTIVE

- To analyze the effect of vitamin D supplementation on clinical outcomes in schizophrenia patients indicated by Positive and Negative Syndrome Scale (PANSS).

METHODOLOGY

- Studies published from 1979 to 2021 in Pubmed and Scopus databases were screened.
- Three independent randomized controlled trials were selected [2,3,4] (Figure 1).
- Changes in PANSS total, general, positive and negative between baseline and endpoint in vitamin D-treated group and placebo group were extracted.
- Data were analyzed using Comprehensive Meta-Analysis version 2. Effect sizes (Hedges's g) and 95% confidence interval (CI) were pooled using fixed-effect and random-effects models. Heterogeneity and publication bias were assessed.

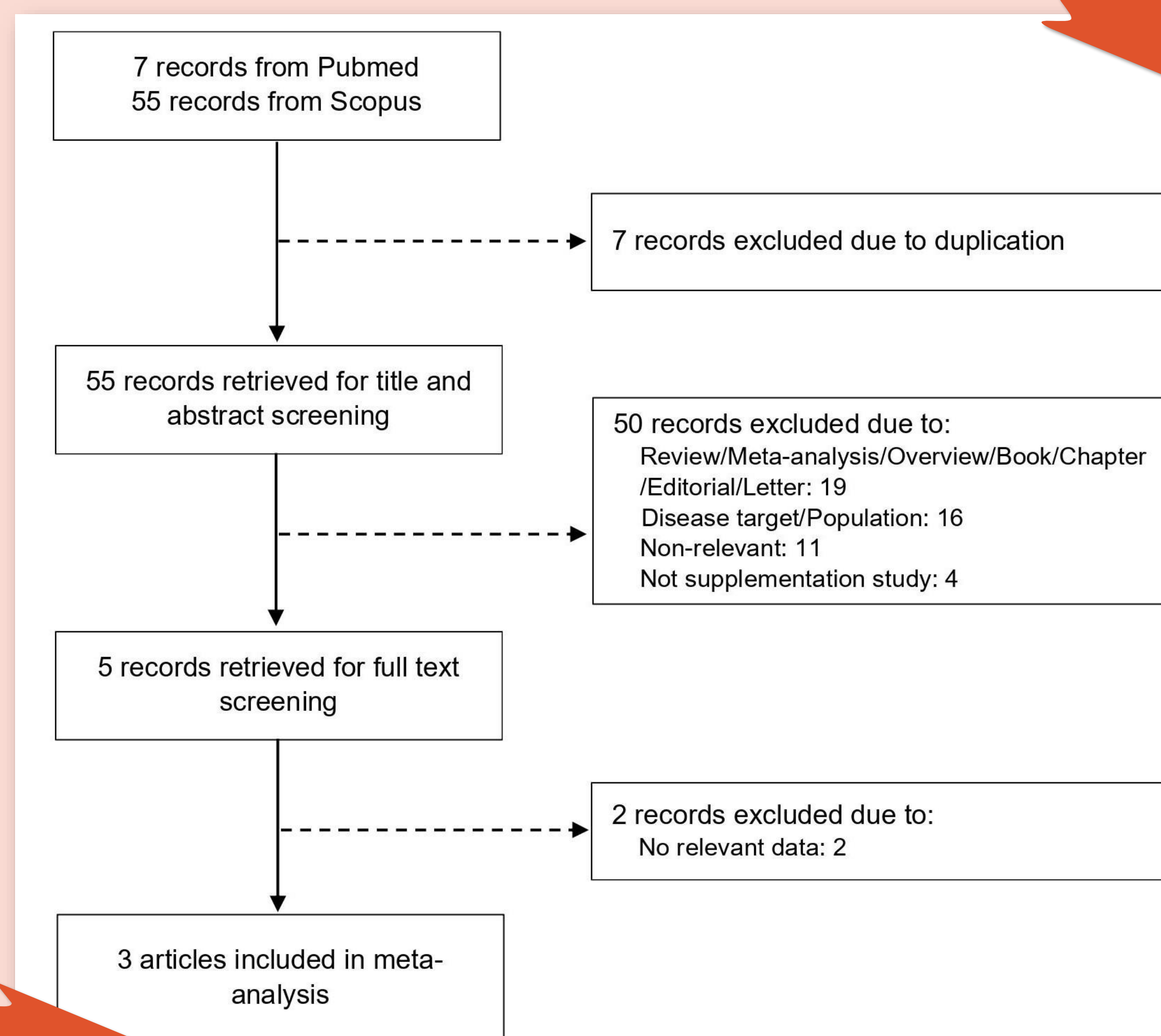


Figure 1: Flow diagram of study selection

RESULTS

- No significant improvement was observed in PANSS total and all subscales after vitamin D supplementation (Figure 2).
- Heterogeneity was present in PANSS total and general only but not in PANSS positive and negative.
- Publication bias was not significant.

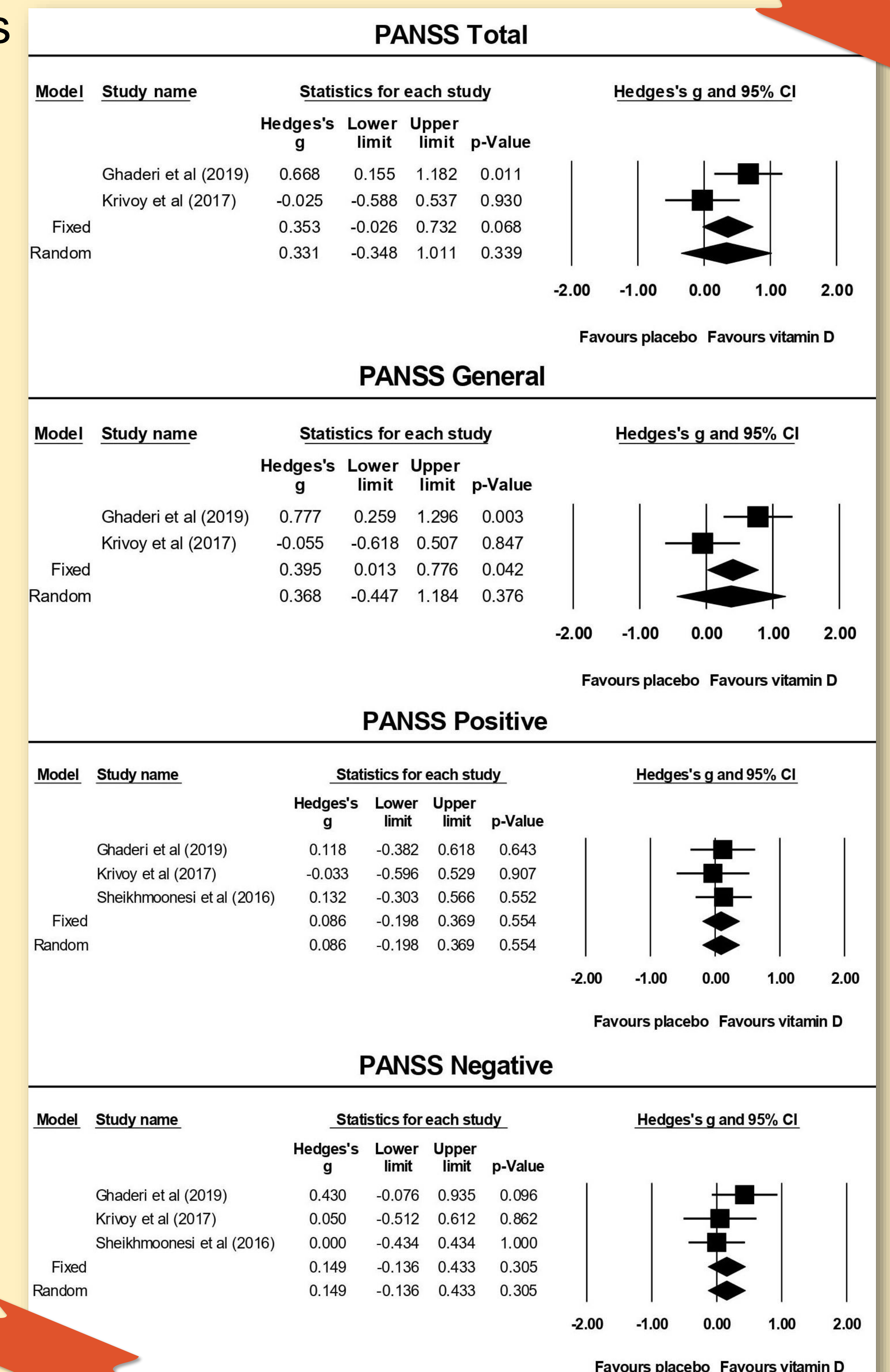


Figure 2: Forest plots of the effect of vitamin D supplementation on PANSS in schizophrenia

DISCUSSION

- The differences in administration, dosage and duration of vitamin D supplementation may result in the heterogeneity.
- It could not deny the beneficial effects of vitamin D on another aspects in mental illnesses as previous meta-analysis found that depressive symptoms, sleep quality, oxidative stress and inflammation were improved among psychiatric patients after vitamin D supplementation [5].

CONCLUSION & FUTURE DIRECTION

- No significant effect of vitamin D supplementation was found in improvement of PANSS in schizophrenia.
- More randomized clinical trials are suggested in future to reveal the real relationship between vitamin D supplementation and different clinical outcomes of schizophrenia.

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