

INPLASY

Tear function in patients with mental disorder: protocol of a systematic review and meta-analysis

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Corresponding author:

Ching-Yen Chen

psycychen@yahoo.com.tw

Author Affiliation:

Keelung Chang Gung Memorial Hospital.

Chen, YJ¹; Shao, SC²; Chen, CY³.

ADMINISTRATIVE INFORMATION

Support - None of financial support.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 July 2023 and was last updated on 22 July 2023.

INTRODUCTION

Review question / Objective The aim of this systematic review and meta-analysis is to compare tear function including tear break up time and Schirmer test in patients with mental disorders vs. patients without mental disorders.

Condition being studied Mental disorders including depression, anxiety and post-traumatic stress disorders have been proven to increase the risk of dry eye disease (DED). Dry eye disease may lead to the vision impairment and subjective symptoms such as burning, redness and pruritus. Tear function test including tear break up time and Schirmer test is one of the objective diagnostic evaluations for the DED. Early diagnosis and treatment of the DED in patients with mental disorders may be helpful to relieve discomfort and reduce the ocular complications.

METHODS

Search strategy Literature searches will be conducted through Embase and PubMed with the following relevant free-text terms and appropriate MeSH terms: (i) mental disorders, schizophrenia, depression, anxiety, bipolar disorder, obsessive compulsive disorder and post-traumatic stress disorders (ii) tear function, tear break-up time and Schirmer test.

Participant or population We will include the studies focusing on adults (at least 16 years old) diagnosed with mental disorders which are based on a standardized criterion such as the Diagnostic and Statistical Manual of Mental Disorders (DSM), the International Classification of Disease or a psychiatrist's diagnosis. We excluded the organic psychiatric disorders, neurodevelopmental disorders, neurocognitive disorder, and substance or alcohol use disorders.

Intervention Not applicable.

Comparator Adults without mental disorders.

Study designs to be included We will include cohort study, case-control study or cross-sectional study.

Eligibility criteria Inclusion criteria for studies will be as follows: (i) Study groups include adults with mental disorders, and the control groups include adults without mental disorders; (ii) Study outcome assessments use Schirmer test or tear break-up time to assess the tear function. Exclusion criteria for studies will be as follows: (i) Studies focus on non-human participants; (ii) Articles include participants who had post-operative DED; (iii) Articles include participants who had organic psychiatric disorders, neurodevelopmental disorders, neurocognitive disorders, and substance or alcohol use disorders; (iv) Articles include overlapping population. In this case, we will only include the studies with the largest sample size; (v) Articles do not include the tear function outcome data reported by mean, standard deviation (or standard errors), median or interquartile range; (vi) Articles are reviews, editorials, case reports and case series.

Information sources We will systemically search Embase and PubMed for the relevant studies on July 2023, and the search will be updated before the manuscript submitted to the medical journals. Two investigators (YJC and CYC) will independently screen the titles and abstracts, and then review the full texts of eligible studies. Any discrepancy will be consulted with SCS.

Main outcome(s) Tear function parameters including tear break-up time and Schirmer test based on different study designs.

Additional outcome(s) Not applicable.

Data management All retrieved records from the database and cited reference searches will be uploaded into EndNote 20, and duplicate records will be removed electronically and then manually. The data extraction, including author name with publication year, mean or median age, regions, proportion of female, mental disorders, comorbidities, co-medication and baseline tear function, will be based on the pre-specific form in EXCEL software (Microsoft 365).

Quality assessment / Risk of bias analysis Two investigators (YJC and CYC) independently use the Newcastle Ottawa scales to assess the risk of bias

from observational studies. Any disagreement will be resolved by the discussions with a third investigator (SCS).

Strategy of data synthesis For each continuous outcome, we conduct the random-effects model meta-analysis to calculate the mean difference and its 95% confidence interval. Between-group heterogeneity will be assessed by the I^2 statistic.

Subgroup analysis We will conduct subgroup analyses based on the diagnosis of mental disorders, medication uses, study regions, gender and age groups from the study-level information.

Sensitivity analysis We will conduct sensitivity analysis to exclude the included studies with high risk of bias and studies with small sample size (e.g., less than 50).

Language restriction No limitation.

Country(ies) involved Taiwan.

Keywords mental disorders; dry eye disease; tear function; meta-analysis.

Dissemination plans We will publish our work in the international medical journal.

Contributions of each author

Author 1 - Yen-Jung Chen.

Email: mra094@cgmh.org.tw

Author 2 - Shih-Chieh Shao.

Email: scshao@cgmh.org.tw

Author 3 - Ching-Yen Chen.

Email: psycychen@yahoo.com.tw