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ADMINISTRATIVE INFORMATION**Support** - None.**Review Stage at time of this submission** - The review has not yet started.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202430087**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 March 2024 and was last updated on 22 March 2024.**INTRODUCTION**

Review question / Objective For children and adolescent with epilepsy, whether the interventions based on mobile health are more effective than traditional face-to-face therapy or traditional self-management strategies.

1. Participants/population: Children and adolescent with epilepsy parents: persons functioning as natural, adoptive, or substitute parents.

2. Intervention(s), exposure(s) Any interventions based on mhealth platform (internet , APP, message, computer, social media, and so on).

3. Comparator(s)/control routine care or waitlist

4. Main outcome(s) Health outcomes in children with epilepsy related to mHealth intervention will include, but not limited to Medication compliance, knowledge, quality of life, and self-efficacy. Parents primary outcomes will include, but not limited to: parents' knowledge, anxiety ,or degree of satisfaction.

Condition being studied Epilepsy (EP) is a chronic brain disorder characterised by recurrent abnormal discharges in the brain caused by a variety of reasons, the frequency of which is unpredictable. Of the approximately 50 million people with epilepsy worldwide, the highest prevalence of epilepsy is found in children and the elderly, and 80 per cent of people with epilepsy live in developing countries. Prolonged frequent or severe seizures may lead to irreversible brain damage and associated cognitive deficits, especially for children and adolescents with epilepsy and their families, imposing a heavy psychological and social burden. There is therefore an urgent need for a proven approach to the management of epilepsy. Mobile Health is currently a novel approach applied to the management of chronic diseases such as hypertension, cardiovascular diseases, neurological disorders and has demonstrated great benefits in disease management, treatment, and follow-up. However, there are few Systematic Review and Meta-analysis on the effectiveness of mHealth for children and families with epilepsy, so in order to provide more effective or accurate

clinical recommendations, we will conduct a Systematic Review and Meta-analysis to determine what specific eHealth interventions for children and families with epilepsy are available? What are the specific characteristics of these interventions? Effectiveness on health outcomes associated with children and adolescents with epilepsy?

METHODS

Search strategy Literature search from inception to 22 March 2024 will be conducted in six electronic databases including PubMed, CINAHL Plus with Full Text, Embase, Web of Science, Cochrane Library, CENTRAL (Ovid), CMB, CNKI, VIP, Wanfang. To ensure the quality of the analysis, the search strategy will be designed according to the principle of PICOS and the recommendations in the Cochrane Collaboration, using medical subject headings (MeSH) terms, text word searches and Boolean calculation searches, and be supplemented by keywords, title or abstract terms. The search will be limited within human being, Observational, cross-sectional, cohort or randomized controlled trials, and the language of studies will be restricted to English or Chinese. Besides, we will examine reference lists of relevant review studies manually, identify and obtain additional relevant literatures.

Participant or population Children and adolescent with epilepsy.

Intervention Any interventions based on e-health platform (internet, APP, message, computer, social media, and so on.)

Comparator Routine care or waitlist.

Study designs to be included All randomized or quasi-randomized controlled trials (RCTs), Observational, cross-sectional, cohort trials. if they apply the interventions provided by mobile health applications, are considered for inclusion.

Eligibility criteria The eligibility criteria following the “participant, intervention, comparison, outcome and study design, (PICOS)” format: 1) participant: Children and adolescent with epilepsy; 2) Intervention: according to the conception of mhealth, we will limit the interventions that must be conducted in following formats: text messaging, e-mail, internet-based tools such as videos, games, chat rooms, and social media, and are inclusive of phone, text, telehealth, web-based platforms, or virtual technologies. 3) Control: the control groups either will receive usual care or are on waitlist defined by the original studies. 4) Outcome: Health

outcomes in children and adolescent with epilepsy related to mHealth intervention will include, but not limited to medication compliance, knowledge, quality of life, and self-efficacy. parent primary outcomes will include, but not limited to: parents' knowledge, anxiety, or degree of satisfaction. 5) Study design: All randomized or quasi-randomized controlled trials (RCTs), Observational, cross-sectional, cohort trials.

Information sources Literature search from inception to 22 March 2024 will be conducted in six electronic databases including PubMed, CINAHL Plus with Full Text, Embase, Web of Science, Cochrane Library, CENTRAL (Ovid), CMB, CNKI, VIP, Wanfang. To ensure the quality of the analysis, the search strategy will be designed according to the principle of PICOS and the recommendations in the Cochrane Collaboration, using medical subject headings (MeSH) terms, text word searches and Boolean calculation searches, and be supplemented by keywords, title or abstract terms. The search will be limited within human being, Observational, cross-sectional, cohort or randomized controlled trials, and the language of studies will be restricted to English or Chinese. Besides, we will examine reference lists of relevant review studies manually, identify and obtain additional relevant literatures.

Main outcome(s) Main outcome(s) Health outcomes in children and adolescent with epilepsy related to mHealth intervention will include, but not limited to Medication compliance, knowledge, quality of life, and self-efficacy. Parent primary outcomes will include, but not limited to: parents' knowledge, anxiety, or degree of satisfaction. Measures of effect: SMD, 95% CI, P value.

Quality assessment / Risk of bias analysis The quality of included studies will be evaluated with the Cochrane Collaboration Network Risk Assessment Standards and d Preferred Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Strategy of data synthesis The heterogeneity tests and meta-analysis will be conducted by Review Manager 5.3. Due to the diversity of interventions and outcome measurements among included studies, we will estimate intervention effects by calculating the standard mean difference (SMD) and 95% confidence interval (CIs). The overall effect difference will be considered to be statistically significant if the P value of both sides is 0.1; if not, which meant high heterogeneity among studies, we are going to use a random effects model to obtain more conservative

estimates. Furthermore, we will test the robustness and reliability of the pooled results by a sensitivity analysis, while a funnel plot will be used to assess the potential publication bias.

Subgroup analysis Its up to the final research findings, we will conduct subgroups analysis if necessary.

Sensitivity analysis A sensitivity analysis will perform using one-by-one elimination of studies that report the outcomes of Health-related. If no significant change is founded in the outcomes, indicating that the results are stable. According to the Cochrane Group, a funnel plot to detect publication bias is not recommended when fewer than 9 studies are included in a meta-analysis.

Country(ies) involved China.

Keywords Epilepsy; Children; Adolescent; Mobile health; effectiveness.

Contributions of each author

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