INPLASY PROTOCOL

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Healthcare Applications of Virtual Reality During the COVID-19 Pandemic: PRISMA Systematic Review

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Review question / Objective: Although previous reviews have examined virtual reality applications in medicine, to the best of our knowledge, no one has investigated its use in the healthcare sector during the COVID-19 pandemic. Therefore, this systematic review aimed to describe the literature on virtual reality applications during the COVID-19 crisis as support in treating mental and physical health conditions and in medical education and training.

Condition being studied: Notably, since the COVID-19 outbreak, the adoption rate of virtual reality in the healthcare sector has seen a massive rise. Many hospitals and medical universities rushed to implement virtual reality applications to remotely provide medical treatment or medical education and training. This fact seems not surprising since virtual reality has become a game-changer for the healthcare sector in more than one way over the last decade. This technology represents a valuable instrument both il support al the treatment of several mental and physical conditions and for the education and training of medical students.

INTRODUCTION

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conditions and in medical education and training.

Rationale: The global breakout of the COVID-19 pandemic at the beginning of 2020 has had adverse health, social, and economic consequences. People dramatically changed their daily habits and behavior due to prolonged self-isolation followed by virus containment measures adopted by most countries worldwide. One of the sectors most affected by the harmful effects of the COVID-19 pandemic is healthcare. Strict rules of social distancing and stay-at-home directions led to relevant difficulties of several in-hospital clinical activities and the interruption of medical education and training.

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METHODS

Search strategy: The search string will be: [("virtual reality") AND [("COVID-19")].

Participant or population: All human participants (clinical and non-clinical population).

Intervention: Virtual reality, or none.

Comparator: Usual care intervention, non-virtual reality group, or none.

Study designs to be included: Quantitative (i.e., randomized controlled trial, quasi-experimental, or cross-sectional correlational design), or mixed-methods studies.

Eligibility criteria: Only studies meeting the following criteria will be considered eligible for inclusion: (1) human participants (clinical and non-clinical populations); (2) the outcome measures focused on healthcare applications of virtual reality during the COVID-19 pandemic; (3) the study design was a randomized controlled trial (RCT) (i.e., a study design that randomly assigns participants into an experimental group or a control group), quasi-experimental (i.e., non-equivalent groups, pretest-posttest, and interrupted time series), cross-sectional/correlational (i.e., employing questionnaires and large samples), or mixed-methods (i.e., combines qualitative and quantitative methods); (4) were written in English; (3) were published after December 2019. This date frame was chosen as COVID-19 first emerged in Wuhan, China, in December 2019 and then spread worldwide. Letters to editors, commentaries, and preprint papers, will be excluded from the review. Studies describing protocols will be also eliminated as they would be unable to provide outcome measures.

Information sources: Databases used in the search will be PsycINFO, Web of Science, and Medline. Additional articles will be identified via hand-searching and reviewing the reference lists of relevant papers.

Main outcome(s): Mental health and/or physical health data and/or learning data.

Data management: The Mixed Methods Appraisal Tool (MMAT) will be used to assess the methodological quality of studies included in this systematic review. It has high reliability and efficiency as a quality assessment protocol and can concomitantly appraise methodological quality across various empirical research. Two of the authors independently will assess study quality.

Strategy of data synthesis: Papers meeting inclusion criteria will be identified through database searches. Papers published in

languages other than English and duplicate instances of papers will be removed. The remaining papers will be assessed using the inclusion and exclusion criteria outlined above. Initially, abstracts will be searched to assess a paper's eligibility for inclusion. If abstract information alone will not be sufficient to determine whether a paper met the criteria, the entire paper will be studied. The following data will be extracted: the populations included in the study (participants; mean age or age range); (2) the study design used (i.e., randomized controlled trial, quasi-experimental, cross-sectional/correlational, mixed-method study); (3) the measures used for the assessment of outcomes (e.g., self-report questionnaires); (4) the study outcomes (i.e., education and training; mental health; physical health).

Subgroup analysis: None.

Sensitivity analysis: None.

Country(ies) involved: Italy.

Keywords: virtual reality, COVID-19 pandemic, medicine, education, training, mental health, physical health.

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