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**ADMINISTRATIVE INFORMATION****Support** - RCSI Summer Student Programme.**Review Stage at time of this submission** - Formal screening of search results against eligibility criteria.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202470089**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 July 2024 and was last updated on 22 July 2024.**INTRODUCTION**

**Review question / Objective** What superhero-supported mental health interventions exist that address adolescents and young people and what is their reported effectiveness?

**Rationale** Since the launch of Superman in 1938, comic books and superheroes have been an integral part of adolescents' and young adults' lives, not only entertaining them but also providing valuable lessons and role models. The World Health Organization estimates that globally 1 in 7 adolescents (ages 10-19) experience mental health conditions, many of which remain undiagnosed and untreated.<sup>1</sup> Finding engaging and effective strategies that can be implemented into mental health interventions for this age group needs to be investigated.

This systematic review will provide an evidence base for Positive Konnections, a tech-enabled

support program based in Zimbabwe that employs superhero metaphors to support young people with mental health challenges. One strategy that has been implemented is the use of superhero characters and their stories in various types of therapy. The vast reach and diversity of superhero characters open the door for many different adolescents to find inspiration from their stories, which can be applied to therapies such as cognitive behavioural therapy (CBT), positive psychology, acceptance and commitment therapy (ACT), and many others.

The objective of this review is to explore existing literature on the use of superheroes in mental health interventions in individuals aged 12-21. The aim is to explore the current literature, identify where and how superheroes have been implemented into mental health interventions, evaluate reported outcomes, and highlight the gaps in current research.

**Condition being studied** The condition is adolescents and young people with any mental health condition (clinical or not clinically diagnosed) that is not related to chronic health conditions and/or from population groups with severe trauma. Mental health conditions of adolescents and young adults (12-24 yrs old) include stress, anxiety, depression, or self-esteem.

## METHODS

**Search strategy** The following databases will be searched: Ebsco host (Medline; APA PsychInfo; CINAHL), Scopus, web of science. Below are the search terms used for intervention, superhero, and mental health:

“Intervention\*” OR “Programme” OR “Programmes” OR “Program” OR “Programs” OR “Therapy” OR “therapies” OR “Support” OR “Session” OR “sessions”

AND

“Super-hero\*” OR “super hero\*” OR “comic\*” OR “graphic novel” OR “comic book” OR “graphic book” OR “pop culture” OR “popular culture” OR “marvel” OR “manga” OR “DC comics”

AND

“mental health” OR “mental disorder” OR “mental illness” OR “stress” OR “anxiety” OR “depression” OR “positive health” OR “shame” OR “guilt” OR “self-esteem” OR “self-efficacy”.

**Participant or population** Adolescents and young people aged 12-24 years with mental health conditions.

**Intervention** Any intervention that addresses mental health of adolescents and young people. An intervention could be a particular programme or therapy, or include different forms of support and could be delivered through 1 or more sessions.

**Comparator** Not applicable.

**Study designs to be included** All study designs will be included.

**Eligibility criteria** The inclusion criteria for this review is adolescents and young adults aged 12-24 that are experiencing mental health conditions such as stress, anxiety, depression, or self-esteem issues. Drug dependency, mental health issues caused by chronic health conditions, and population groups with severe trauma will be

excluded. The interventions must utilize superheroes or superhero stories in any form such as story based, art, comic books, or video games. Any setting of these interventions is included. All studies will be included other than non-English studies unless translations are available.

**Information sources** The databases include Ebsco host (Medline; APA PsychInfo; CINAHL), Scopus, web of science.

All literature reviews retrieved on the topic will be examined to ensure all relevant interventions are included in our review.

Preliminary results will be shared with the Graphic Medicine international Collective (<https://www.graphicmedicine.org/graphic-medicine-international-collective/>) to see if there are any interventions they are familiar with that we have not included.

Main authors of interventions will be contacted for any further information or documentation they have on the intervention.

### Main outcome(s)

The outcome will be:

1. Description and contact details (if known) of super-hero based mental health interventions designed to assist adolescents and young people
2. Reported effectiveness of included interventions and measures used
3. Quality assessment of the reported studies.

**Additional outcome(s)** No additional outcomes are expected to be collected.

**Data management** As all data is publicly available no research ethics will be obtained. Covidence software will be used to manage the data and the data will be extracted into excel. The excel file will be kept in a file on the RCSI password protected shared drive to facilitate sharing of data and version control.

### Quality assessment / Risk of bias analysis

Quality will be assessed differently across study types using the most commonly used checklists for particular research designs (Ma et al, 2020). For qualitative studies the Critical Appraisal Skills Programme (CASP) (CASP 2022) will be used. For Randomised Controlled Trials (RCTs), the risk of bias (RoB-2) revised tool will be used (Higgins, et al, 2011). Quasi-experimental studies will be assessed using the Joanna Briggs Institute (JBI) Checklist for Quasi-Experimental Studies (non-randomized experimental studies) (Tufanaru et al 2019). Mixed-methods studies will be assessed using the mixed-methods questions from the

CASP Mixed Methods Appraisal Tool (MMAT) (Hong et al, 2019).

References:

CASP, CASP qualitative checklist 2022 [Available from: [https://casp-uk.net/images/checklist/documents/CASP-Qualitative-Studies-Checklist/CASP-Qualitative-Checklist-2018\\_fillable\\_form.pdf](https://casp-uk.net/images/checklist/documents/CASP-Qualitative-Studies-Checklist/CASP-Qualitative-Checklist-2018_fillable_form.pdf)]  
Higgins JP, Altman DG, Gøtzsche PC, Jüni P, Moher D, Oxman AD, et al. 2011, The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *BMJ*. 2011;343:d5928

Hong QN, Pluye P, Fàbregues S, Bartlett G, Boardman F, Cargo M, et al. 2019 Improving the content validity of the mixed methods appraisal tool: a modified e-Delphi study. *J Clin Epidemiol*. 111:49-59.e1.

Ma, L.-L., Wang, Y.-Y., Yang, Z.-H., Huang, D., Weng, H., & Zeng, X.-T. (2020). Methodological quality (risk of bias) assessment tools for primary and secondary medical studies: what are they and which is better? *Military Medical Research*, 7(1), 7. <https://doi.org/10.1186/s40779-020-00238-8>

Tufanaru C, Munn Z, Aromataris E, Campbell J, Hopp L. 2019. Chapter 3: Systematic Reviews of Effectiveness.

**Strategy of data synthesis** Using Covidence, two authors (ND, EB) will take part in the initial title and abstract screening and full-text screening, with each reviewer screening each article independently. The same two authors (ND, EB) will conduct the full-text screening. If there is a conflict, the third author (VM) will review the article and the full team will discuss the outcome. Following title and abstract screening, full-text articles will be uploaded for the remaining studies. The full-text screening will be completed by examining the articles for compliance with the inclusion/exclusion criteria. One of the authors (ND) will cross-reference articles in related systematic or scoping reviews with the articles we include. We (ND) will also contact authors, mainly via ResearchGate, when we cannot find the full text for an article retrieved or to enquire whether there is any additional information available elsewhere. Two authors (ND, EB) will independently review each article in Covidence and conducted the quality review.

The study data extraction form will include a detailed description of the intervention/programme and impact/evaluation details. We will export the extracted data into excel for further data analysis and synthesis. The Cochrane Handbook Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) checklist (Page et al., 2021) will be used to ensure all systematic review aspects are included. Depending on the data extracted a

meta-analysis or a meta synthesis will be performed. A preliminary review of the types of articles included indicates that a meta synthesis of the data will be conducted.

Reference

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>.

**Subgroup analysis** If data is reported by key populations we will disaggregate our analysis by these key populations.

**Sensitivity analysis** No sensitivity analysis will be conducted.

**Language restriction** Only English language studies will be included.

**Country(ies) involved** International study with authors from Canada, Zimbabwe and Ireland.

**Keywords** Mental health; super hero; comics; youth and adolescent.

**Dissemination plans** The preliminary findings will be shared at the Irish Forum for Global Health to be held in RCSI, October 2024. A graphically illustrated poster will be developed to be presented in different forums, such as RCSI research day, the public engagement building in RCSI, and in Zimbabwe at events where mental health of adolescents and young people is being debated. The results will be published in a peer reviewed academic journal and the results will inform further design and development of mental health applications for adolescents and young people in Zimbabwe and hopefully globally.

**Contributions of each author**

Author 1 - Nevada Depner - Will be involved in all stages of the review, from searching databases, screening, data extraction, quality assessment, data synthesis, contacting authors for additional information, drafting and finalizing the manuscript. Email: [nevadadepner22@rcsi.ie](mailto:nevadadepner22@rcsi.ie)

Author 2 - Vongai Munatsi - Will be involved in finalizing the manuscript, dissemination and use of

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the findings in refining and designing mental health interventions.

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Author 3 - Elaine Byrne - Will be involved in all stages of the review, from searching databases, screening, data extraction, quality assessment, data synthesis, drafting and finalizing the manuscript and will be the person overall.

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