Systematic review

1. * Review title.

Give the title of the review in English

Effectiveness of distance suicide prevention programs, a multi-level meta-analysis and systematic review.

2. Original language title.

For reviews in languages other than English, give the title in the original language. This will be displayed with the English language title.

3. * Anticipated or actual start date.

Give the date the systematic review started or is expected to start.

08/12/2020

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

01/07/2021

5. * Stage of review at time of this submission.

Tick the boxes to show which review tasks have been started and which have been completed. Update this field each time any amendments are made to a published record.

Reviews that have started data extraction (at the time of initial submission) are not eligible for inclusion in PROSPERO. If there is later evidence that incorrect status and/or completion date has been supplied, the published PROSPERO record will be marked as retracted.

This field uses answers to initial screening questions. It cannot be edited until after registration.

The review has not yet started: No

Review stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	No	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Provide any other relevant information about the stage of the review here.

Currently only unsystematic searches were done to establish search strings and check data availability.

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6. * Named contact.

The named contact is the guarantor for the accuracy of the information in the register record. This may be any member of the review team.

Jim Schmeckenbecher

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Mr Schmeckenbecher

7. * Named contact email.

Give the electronic email address of the named contact.

jim.schmeckenbecher@meduniwien.ac.at

8. Named contact address

Give the full institutional/organisational postal address for the named contact.

Jim Schmeckenbecher MSc.

Medical University Vienna

Department of Psychoanalysis and Psychotherapy

Waehringer Guertel 18-20

1090 Wien

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

10. * Organisational affiliation of the review.

Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

Medical University of Vienna

Organisation web address:

https://www.meduniwien.ac.at/hp/psychoanalyse/

11. * Review team members and their organisational affiliations.

Give the personal details and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong. **NOTE: email and country now MUST be entered for each person, unless you are amending a published record.**

Mr Jim Schmeckenbecher. Medical University of Vienna
Ms Katrin Rattner. Chiemgau - Clinic Marquartstein
Assistant/Associate Professor Nestor Kapusta. Medical University Vienna

12. * Funding sources/sponsors.

Details of the individuals, organizations, groups, companies or other legal entities who have funded or sponsored the review.

European Union/ erasmus+

Grant number(s)

State the funder, grant or award number and the date of award

erasmus+

Grant Number: 2019-1-SE01-KA203-0660571

Awarded on then 01.09.2019

13. * Conflicts of interest.

List actual or perceived conflicts of interest (financial or academic).

None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members. **NOTE: email and country must be completed for each person, unless you are amending a published record.**

15. * Review question.

State the review question(s) clearly and precisely. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PI(E)COS or similar where relevant.

General research question: Are distance suicide prevention programs effective AND are non human based suicide prevention programs as effective, as human based suicide prevention programs?

Definition of distance suicide prevention program: Any program not requiring the patient/client to be at a single fixed physical location, during the prevention program.

Research questions are split in two sections, main research questions and additional.Additional questions have predefined requirements = “if’s”, when met questions are implemented, otherwise not.Main Research questions(1) Are distance based suicide prevention programs overall effective against suicidality?

(2) Are effects of suicide prevention programs stable over time ?

(3) Effectiveness measurements are significantly impacted by the choice of control group (waitlist vs. attention placebo vs. TAU …).

Additional research questions If: k ? 10 for both subsets. [k = study].(4) [Subgroup analysis]: Are non human based suicide prevention programs (e.g. Apps, Online programs …) and human based suicide prevention programs (e.g. letters, phone calls, zoom meetings …) comparably effective?

If: outcomes ? 10 of suicidal behavior [suicide, suicide attempts, self harm.]

(5) [Subgroup Analysis] Are distance based suicide prevention programs more effective against suicide behavior or against suicidal thoughts (ideation and planning)?

16. * Searches.

State the sources that will be searched (e.g. Medline). Give the search dates, and any restrictions (e.g. language or publication date). Do NOT enter the full search strategy (it may be provided as a link or attachment below.)

Systematic searches, based on Title and Abstract, will be done on Web of Science, Scopus and PubMed using the search strings in the attached file. In addition found systematic reviews are extracted and scanned for studies meriting initial inclusion. The initial criteria are: RCT Design, a suicide prevention distance program; suicide related outcome variable. Finally reference lists of included studies will be reviewed to identify relevant citations.All platforms are independently searched by two researchers (JS and KR), according to the PRISMA Statement.All included studies are compared, differences are discussed; in case of disagreement the third author (NK) is consulted. A coefficient of agreement will be reported and is based on included studies.The first systematic search will be between the 01.12.2020 – 28.12.2020 and re-run before the paper is finalised (planned: 25.07.2021).All peer reviewed primary studies are included, no restriction on the publication date of the primary study, including papers in early access. Unpublished studies will not be sought.

Summary of search terms (? search strings): Suicide OR Self harm AND Online Intervention OR App OR letter OR phone based OR post-card OR mobile Intervention AND RCT OR Random

17. URL to search strategy.

Upload a file with your search strategy, or an example of a search strategy for a specific database, (including the keywords) in pdf or word format. In doing so you are consenting to the file being made publicly accessible. Or provide a URL or link to the strategy. Do NOT provide links to your search **results**.

https://www.crd.york.ac.uk/PROSPEROFILES/218791_STRATEGY_20201103.pdf

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Do not make this file publicly available until the review is complete

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied in your systematic review.

Distance suicide prevention has been an emergent field for years, facilitated by the increased capabilities of smartphone and improvements in machine learning and has notably increased in acceptance and availability

over the last decade. The outbreak of Covid-19 has accelerated this development, with an increased need for suicide prevention and a decreased availability of face to face programs.The additional advantages of distance programs: being that most programs are cheaper, able to reach afflicted individuals regardless of location and – in case of the non human based approaches– regardless of working hours, it stands to reason that these programs will be part of future suicide prevention efforts.

19. * Participants/population.

Specify the participants or populations being studied in the review. The preferred format includes details of both inclusion and exclusion criteria.

No restriction on population

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the interventions or the exposures to be reviewed. The preferred format includes details of both inclusion and exclusion criteria.

Distance suicide prevention programs. (e.g. Apps, Online programs, e-mails, letters, phone call)

21. * Comparator(s)/control.

Where relevant, give details of the alternatives against which the intervention/exposure will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.

Control groups, no limitation on type of control group.But impact of control group type (TAU, attention placebo and waitlist) is investigated.

22. * Types of study to be included.

Give details of the study designs (e.g. RCT) that are eligible for inclusion in the review. The preferred format includes both inclusion and exclusion criteria. If there are no restrictions on the types of study, this should be stated.

Peer reviewed papers with a Randomized Control Trial Design.Studies must evaluate a distance prevention program, using at least one of the following direct measurements of suicidality: Suicide, Completed Suicide, Suicide Attempts, Self Injurious Behavior, Suicide Risk, Suicide Planning, Suicide ideation or synonymous terms (e.g. Self injurious behavior ~ self harm ~ self mutilation ~ self poisoning).

23. Context.

Give summary details of the setting or other relevant characteristics, which help define the inclusion or exclusion criteria.

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

By choosing a multilevel model multiple different outcome variables per study can be included, meaning all possible direct indicators of suicidality are included.Examples are: Suicide, Completed Suicide, Suicide

Attempts, Suicide Risk, Self Injurious Behavior, Suicide Risk, Suicide Planning, Suicide ideation.

* Measures of effect

Please specify the effect measure(s) for you main outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

SMD scores (Hedges g), derived from comparing measurements at baseline vs. after/during intervention.

25. * Additional outcome(s).

List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state ‘None’ or ‘Not applicable’ as appropriate to the review

The second interest is the type of intervention used , namely: non human based suicide prevention programs (e.g. Apps, Online …) and human based suicide prevention programs (e.g. letters, phone calls).Despite the categorical advantages of non human based suicide prevention programs regarding availability, feasibility and scalability, it must be assured that these are at least as effective as human based suicide prevention programs.An additional major component are follow up measurements, as the best suicide prevention program should have a long term effect.

* Measures of effect

Please specify the effect measure(s) for you additional outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Follow up measurements, if reported are included, the same type of measures are used.

26. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

If a study has a RCT design and reports the results of a distance suicide prevention program, using a direct measurement of suicidality (e.g. ideation, attempt, self harm) it is a candidate for inclusion (based on abstract).The full text evaluation requires of a study to report the following: (1) Authors, (2) Year published, (3) mean age of sample, (4) percentage of males and females (5) Number of participants (6) Used comparator group (waitlist, Attention placebo or TAU) and (7) used method (e.g. App, phone-call, online program…). Further the following information must be reported for an outcome variable to be included: (a) the name (e.g. suicide planning), (b) a measurement (e.g. Pre-intervention: Mean 5.0(.5); Post-Intervention Mean 4.4 (.34); all outcome variables reporting these are included.If a study reports all points drawn up above, it will be included and coded. Measurements are at this time point transformed into SMD's thereby also excluding data transformation errors.Authors will not be contacted, to retrieve missing data, due to the sensitive subject matter. Searching, screening and coding will be done by two researchers independently (Jim Schmeckenbecher (JS) and Katrin Rattner (KR)). During any stage of research KR and JS work independent, comparing and combining results after each stage (search/screening and coding). This is done by discussion and evaluating any point of difference until agreement is reached, in case of continuing

disagreement the third author (Nestor Kapusta) is consulted.In case of differences after the coding phase, differences in the excel sheets are investigated by recoding and recalculation, until the difference is resolved.The final excel sheet will be made available along the R code via OSF.

27. * Risk of bias (quality) assessment.

State which characteristics of the studies will be assessed and/or any formal risk of bias/quality assessment tools that will be used.

Study Quality will be assessed using the RoB 2 (Sterne et al. 2019).Study Quality assessment is done by two authors (JS & KR), results are compared, in case of disagreement the third author is consulted.Publication bias assessment will be done using a funnel plot and supplemented by Trim and Fill (Duval & Tweedie, 2000), as well as TIVA (Schimmack, 2014), according to current recommendations (Renkewitz & Keiner, 2019).Should ? 20% of all studies report non significant results censorship is seen as less severe, in this case instead of TIVA or Trim and Fill, TES (Ioannidis & Trikalinos, 2007; Francis, 2013) will be used, as TES proved superior in this specific case (Renkewitz & Keiner, 2019).

28. * Strategy for data synthesis.

Describe the methods you plan to use to synthesise data. This **must not be generic text** but should be **specific to your review** and describe how the proposed approach will be applied to your data. If meta-analysis is planned, describe the models to be used, methods to explore statistical heterogeneity, and software package to be used.

A five level meta-analysis to include dependent data, with the following levels: overall/control-groups/studies/ outcomes/timepoints.Calculations will be done in R, using metafor.The Minimum number of studies is defined by convergence of the model, in case of non-convergence the model is reduced, excluding comparison group as a level, but including the most commonly reported control group types in a subgroup analysis. In case of exceeding amounts of overall heterogeneity (I^2 ? 85%), the level structure is investigated to locate the source of heterogeneity. Should the source of heterogeneity be a single outcome variable/study/ time-point it is excluded. If a large degree is explained by the difference between control groups it is tolerated. Should heterogeneity not be traceable to a specific source, high heterogeneity must be stated as a major limitation and caution will be advised in interpreting results.

29. * Analysis of subgroups or subsets.

State any planned investigation of ‘subgroups’. Be clear and specific about which type of study or participant will be included in each group or covariate investigated. State the planned analytic approach.

Planned subsets are: non human based suicide prevention programs vs. human based suicide prevention programs.Suicidal acts vs. suicidal thoughts

30. * Type and method of review.

Select the type of review, review method and health area from the lists below.

Type of review

Cost effectiveness
No

Diagnostic
No

Epidemiologic
No

Individual patient data (IPD) meta-analysis
No

Intervention
No

Meta-analysis
Yes

Methodology
No

Narrative synthesis
No

Network meta-analysis
No

Pre-clinical
No

Prevention
Yes

Prognostic
No

Prospective meta-analysis (PMA)
No

Review of reviews
No

Service delivery
No

Synthesis of qualitative studies
No

Systematic review
Yes

Other
No

Health area of the review

Alcohol/substance misuse/abuse
No

Blood and immune system
No

Cancer

No

Cardiovascular
No

Care of the elderly
No

Child health
No

Complementary therapies
No

COVID-19
No

Crime and justice
No

Dental
No

Digestive system
No

Ear, nose and throat
No

Education
No

Endocrine and metabolic disorders
No

Eye disorders
No

General interest
No

Genetics
No

Health inequalities/health equity
No

Infections and infestations
No

International development
No

Mental health and behavioural conditions
Yes

Musculoskeletal
No

Neurological
No

Nursing
No

Obstetrics and gynaecology
No

Oral health
No

Palliative care
No

Perioperative care
No

Physiotherapy
No

Pregnancy and childbirth
No

Public health (including social determinants of health)
No

Rehabilitation
No

Respiratory disorders
No

Service delivery
No

Skin disorders
No

Social care
No

Surgery
No

Tropical Medicine
No

Urological
No

Wounds, injuries and accidents
No

Violence and abuse
No

31. Language.

Select each language individually to add it to the list below, use the bin icon to remove any added in error.
English

There is not an English language summary

32. * Country.

Select the country in which the review is being carried out. For multi-national collaborations select all the countries involved.

Austria
Germany

33. Other registration details.

Name any other organisation where the systematic review title or protocol is registered (e.g. Campbell, or The Joanna Briggs Institute) together with any unique identification number assigned by them. If extracted data will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.

34. Reference and/or URL for published protocol.

If the protocol for this review is published provide details (authors, title and journal details, preferably in Vancouver format)

Add web link to the published protocol.

Or, upload your published protocol here in pdf format. Note that the upload will be publicly accessible.

No I do not make this file publicly available until the review is complete

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.

Do you intend to publish the review on completion?

Yes

Give brief details of plans for communicating review findings.?

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords help PROSPERO users find your review (keywords do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

Suicide Prevention; distance approach; Meta-analysis;

37. Details of any existing review of the same topic by the same authors.

If you are registering an update of an existing review give details of the earlier versions and include a full bibliographic reference, if available.

38. * Current review status.

Update review status when the review is completed and when it is published.New registrations must be ongoing so this field is not editable for initial submission.
Please provide anticipated publication date

Review_Ongoing

39. Any additional information.

Provide any other information relevant to the registration of this review.

Ammended according to the information made available in the PROSPERO Registration message [218791]

40. Details of final report/publication(s) or preprints if available.

Leave empty until publication details are available OR you have a link to a preprint (NOTE: this field is not editable for initial submission). List authors, title and journal details preferably in Vancouver format.

Give the link to the published review or preprint.