

# CONSORT-EHEALTH (V 1.6.1) - Submission/Publication Form

The CONSORT-EHEALTH checklist is intended for authors of randomized trials evaluating web-based and Internet-based applications/interventions, including mobile interventions, electronic games (incl multiplayer games), social media, certain telehealth applications, and other interactive and/or networked electronic applications. Some of the items (e.g. all subitems under item 5 - description of the intervention) may also be applicable for other study designs.

The goal of the CONSORT EHEALTH checklist and guideline is to be  
a) a guide for reporting for authors of RCTs,  
b) to form a basis for appraisal of an ehealth trial (in terms of validity)

CONSORT-EHEALTH items/subitems are MANDATORY reporting items for studies published in the Journal of Medical Internet Research and other journals / scientific societies endorsing the checklist.

Items numbered 1., 2., 3., 4a., 4b etc are original CONSORT or CONSORT-NPT (non-pharmacologic treatment) items.

Items with Roman numerals (i., ii, iii, iv etc.) are CONSORT-EHEALTH extensions/clarifications.

As the CONSORT-EHEALTH checklist is still considered in a formative stage, we would ask that you also RATE ON A SCALE OF 1-5 how important/useful you feel each item is FOR THE PURPOSE OF THE CHECKLIST and reporting guideline (optional).

Mandatory reporting items are marked with a red \*.

In the textboxes, either copy & paste the relevant sections from your manuscript into this form - please include any quotes from your manuscript in QUOTATION MARKS, or answer directly by providing additional information not in the manuscript, or elaborating on why the item was not relevant for this study.

YOUR ANSWERS WILL BE PUBLISHED AS A SUPPLEMENTARY FILE TO YOUR PUBLICATION IN JMIR AND ARE CONSIDERED PART OF YOUR PUBLICATION (IF ACCEPTED).

Please fill in these questions diligently. Information will not be copyedited, so please use proper spelling and grammar, use correct capitalization, and avoid abbreviations.

DO NOT FORGET TO SAVE AS PDF \_AND\_ CLICK THE SUBMIT BUTTON SO YOUR ANSWERS ARE IN OUR DATABASE !!!

Citation Suggestion (if you append the pdf as Appendix we suggest to cite this paper in the caption):

Eysenbach G, CONSORT-EHEALTH Group

CONSORT-EHEALTH: Improving and Standardizing Evaluation Reports of Web-based and Mobile Health Interventions

J Med Internet Res 2011;13(4):e126



URL: <http://www.jmir.org/2011/4/e126/>

doi: 10.2196/jmir.1923

PMID: 22209829



**byron.chiang@gmail.com** (not shared) [Switch account](#)



Draft saved

\* Required

Your name \*

First Last

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University of Toronto, Toronto, Canada

The University of Hong Kong, Hong Kong, Chin

Your e-mail address \*

[abc@gmail.com](mailto:abc@gmail.com)

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Title of your manuscript \*

Provide the (draft) title of your manuscript.

Effects of community-based caring contact in reducing thwarted belongingness among post-discharge young adults with self-harm - a randomized control trial



**Name of your App/Software/Intervention \***

If there is a short and a long/alternate name, write the short name first and add the long name in brackets.

Community Care Study

**Evaluated Version (if any)**

e.g. "V1", "Release 2017-03-01", "Version 2.0.27913"

Your answer

**Language(s) \***

What language is the intervention/app in? If multiple languages are available, separate by comma (e.g. "English, French")

Chinese, English

**URL of your Intervention Website or App**

e.g. a direct link to the mobile app on app in appstore (itunes, Google Play), or URL of the website. If the intervention is a DVD or hardware, you can also link to an Amazon page.

<https://apps.apple.com/hk/app/community-care-study/id1247800681?l=en>

**URL of an image/screenshot (optional)**

Your answer



**Accessibility \***

Can an enduser access the intervention presently?

- access is free and open
- access only for special usergroups, not open
- access is open to everyone, but requires payment/subscription/in-app purchases
- app/intervention no longer accessible
- Other:

**Primary Medical Indication/Disease/Condition \***

e.g. "Stress", "Diabetes", or define the target group in brackets after the condition, e.g. "Autism (Parents of children with)", "Alzheimers (Informal Caregivers of)"

Individuals with an index episode of self-poi

**Primary Outcomes measured in trial \***

comma-separated list of primary outcomes reported in the trial

ASIQ4, BHS4, INQ, INQ-TB, INQ-PB,CESD

**Secondary/other outcomes**

Are there any other outcomes the intervention is expected to affect?

Number of participants reporting service compliance by group, number of participants seeking professional consultation by group, number of participants seeking informal help by group



## Recommended "Dose" \*

What do the instructions for users say on how often the app should be used?

- Approximately Daily
- Approximately Weekly
- Approximately Monthly
- Approximately Yearly
- "as needed"
- Other:

## Approx. Percentage of Users (starters) still using the app as recommended after 3 months \*

- unknown / not evaluated
- 0-10%
- 11-20%
- 21-30%
- 31-40%
- 41-50%
- 51-60%
- 61-70%
- 71%-80%
- 81-90%
- 91-100%
- Other:



Overall, was the app/intervention effective? \*

- yes: all primary outcomes were significantly better in intervention group vs control
- partly: SOME primary outcomes were significantly better in intervention group vs control
- no statistically significant difference between control and intervention
- potentially harmful: control was significantly better than intervention in one or more outcomes
- inconclusive: more research is needed
- Other:

Article Preparation Status/Stage \*

At which stage in your article preparation are you currently (at the time you fill in this form)

- not submitted yet - in early draft status
- not submitted yet - in late draft status, just before submission
- submitted to a journal but not reviewed yet
- submitted to a journal and after receiving initial reviewer comments
- submitted to a journal and accepted, but not published yet
- published
- Other:



**Journal \***

If you already know where you will submit this paper (or if it is already submitted), please provide the journal name (if it is not JMIR, provide the journal name under "other")

- not submitted yet / unclear where I will submit this
- Journal of Medical Internet Research (JMIR)
- JMIR mHealth and UHealth
- JMIR Serious Games
- JMIR Mental Health
- JMIR Public Health
- JMIR Formative Research
- Other JMIR sister journal
- Other:

Is this a full powered effectiveness trial or a pilot/feasibility trial? \*

- Pilot/feasibility
- Fully powered

**Manuscript tracking number \***

If this is a JMIR submission, please provide the manuscript tracking number under "other" (The ms tracking number can be found in the submission acknowledgement email, or when you login as author in JMIR. If the paper is already published in JMIR, then the ms tracking number is the four-digit number at the end of the DOI, to be found at the bottom of each published article in JMIR)

- no ms number (yet) / not (yet) submitted to / published in JMIR
- Other: 43526



## TITLE AND ABSTRACT

## 1a) TITLE: Identification as a randomized trial in the title

## 1a) Does your paper address CONSORT item 1a? \*

I.e does the title contain the phrase "Randomized Controlled Trial"? (if not, explain the reason under "other")

yes

Other:

## 1a-i) Identify the mode of delivery in the title

Identify the mode of delivery. Preferably use "web-based" and/or "mobile" and/or "electronic game" in the title. Avoid ambiguous terms like "online", "virtual", "interactive". Use "Internet-based" only if Intervention includes non-web-based Internet components (e.g. email), use "computer-based" or "electronic" only if offline products are used. Use "virtual" only in the context of "virtual reality" (3-D worlds). Use "online" only in the context of "online support groups". Complement or substitute product names with broader terms for the class of products (such as "mobile" or "smart phone" instead of "iphone"), especially if the application runs on different platforms.

subitem not at all important

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essential

Clear selection





Does your paper address subitem 1a-i? \*

Copy and paste relevant sections from manuscript title (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

We used "community-based caring contact" to encapsulate all the modes of delivery across three arms (i.e., app only, app + volunteer and control group). Since we had an intervention group consisting potential physical volunteers contact upon participants' request, we did not include "mobile" to avoid confusion.

1a-ii) Non-web-based components or important co-interventions in title

Mention non-web-based components or important co-interventions in title, if any (e.g., "with telephone support").

subitem not at all important

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Clear selection

Does your paper address subitem 1a-ii?

Copy and paste relevant sections from manuscript title (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

For the intervention group that consisted potential physical volunteers contact, it would only happen if participants built rapport with the volunteers, which might resulted in a physical meet up. This component is optional.



**1a-iii) Primary condition or target group in the title**

Mention primary condition or target group in the title, if any (e.g., "for children with Type I Diabetes") Example: A Web-based and Mobile Intervention with Telephone Support for Children with Type I Diabetes: Randomized Controlled Trial

subitem not at all important

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Clear selection

**Does your paper address subitem 1a-iii? \***

Copy and paste relevant sections from manuscript title (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"postdischarge young adults with self-harm"

**1b) ABSTRACT: Structured summary of trial design, methods, results, and conclusions**

NPT extension: Description of experimental treatment, comparator, care providers, centers, and blinding status.



1b-i) Key features/functionalities/components of the intervention and comparator in the METHODS section of the ABSTRACT

Mention key features/functionalities/components of the intervention and comparator in the abstract. If possible, also mention theories and principles used for designing the site. Keep in mind the needs of systematic reviewers and indexers by including important synonyms. (Note: Only report in the abstract what the main paper is reporting. If this information is missing from the main body of text, consider adding it)

subitem not at all important

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Clear selection

Does your paper address subitem 1b-i? \*

Copy and paste relevant sections from the manuscript abstract (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

'We conducted a pragmatic RCT on discharged patients aged 18–45 with self-harm episodes/suicide attempts who were physically recruited from the emergency departments of four hospitals in Hong Kong. Participants were randomly assigned to one of three groups, "1) mobile app+TAU(App+TAU), 2) mobile app+volunteer support + TAU(App+Vol+TAU), or 3) TAU-only as the control group(TAU), for a three-month observation with four measurement time points' through self-assessed online questionnaires built in the mobile app.



**1b-ii) Level of human involvement in the METHODS section of the ABSTRACT**

Clarify the level of human involvement in the abstract, e.g., use phrases like “fully automated” vs. “therapist/nurse/care provider/physician-assisted” (mention number and expertise of providers involved, if any). (Note: Only report in the abstract what the main paper is reporting. If this information is missing from the main body of text, consider adding it)

subitem not at all important

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Clear selection

**Does your paper address subitem 1b-ii?**

Copy and paste relevant sections from the manuscript abstract (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

'We conducted a pragmatic RCT on discharged patients aged 18–45 with self-harm episodes/suicide attempts who were physically recruited from the emergency departments of four hospitals in Hong Kong. Participants were randomly assigned to one of three groups, 1) mobile app+TAU(App+TAU), 2) mobile app+"volunteer" support + TAU(App+Vol+TAU), or 3) TAU-only as the control group(TAU), for a three-month observation with four measurement time points' through self-assessed online questionnaires built in the mobile app.



1b-iii) Open vs. closed, web-based (self-assessment) vs. face-to-face assessments in the METHODS section of the ABSTRACT

Mention how participants were recruited (online vs. offline), e.g., from an open access website or from a clinic or a closed online user group (closed usergroup trial), and clarify if this was a purely web-based trial, or there were face-to-face components (as part of the intervention or for assessment). Clearly say if outcomes were self-assessed through questionnaires (as common in web-based trials). Note: In traditional offline trials, an open trial (open-label trial) is a type of clinical trial in which both the researchers and participants know which treatment is being administered. To avoid confusion, use "blinded" or "unblinded" to indicated the level of blinding instead of "open", as "open" in web-based trials usually refers to "open access" (i.e. participants can self-enrol). (Note: Only report in the abstract what the main paper is reporting. If this information is missing from the main body of text, consider adding it)

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Does your paper address subitem 1b-iii?

Copy and paste relevant sections from the manuscript abstract (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"We conducted a pragmatic RCT on discharged patients aged 18–45 with self-harm episodes/suicide attempts "who were physically recruited from the emergency departments of four hospitals in Hong Kong". Participants were randomly assigned to one of three groups, 1) mobile app+TAU(App+TAU), 2) mobile app+volunteer support + TAU(App+Vol+TAU), or 3) TAU-only as the control group(TAU), "for a three-month observation with four measurement time points through self-assessed online questionnaires built in the mobile app".



**1b-iv) RESULTS section in abstract must contain use data**

Report number of participants enrolled/assessed in each group, the use/uptake of the intervention (e.g., attrition/adherence metrics, use over time, number of logins etc.), in addition to primary/secondary outcomes. (Note: Only report in the abstract what the main paper is reporting. If this information is missing from the main body of text, consider adding it)

subitem not at all important

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Clear selection

**Does your paper address subitem 1b-iv?**

Copy and paste relevant sections from the manuscript abstract (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"A total of 40 participants were recruited. Blending volunteer care with a pre-programmed mobile app was found effective in improving service compliance. Drawing upon the interpersonal-psychological theory of suicide (IPTs), our findings could ascertain a reduction in thwarted belongingness (TB) through community-based caring contact is linked to improvement in hopelessness, albeit a transient one, and suicide risk in a growth model."



**1b-v) CONCLUSIONS/DISCUSSION in abstract for negative trials**

Conclusions/Discussions in abstract for negative trials: Discuss the primary outcome - if the trial is negative (primary outcome not changed), and the intervention was not used, discuss whether negative results are attributable to lack of uptake and discuss reasons. (Note: Only report in the abstract what the main paper is reporting. If this information is missing from the main body of text, consider adding it)

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Clear selection

**Does your paper address subitem 1b-v?**

Copy and paste relevant sections from the manuscript abstract (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"A combination of volunteer care with a mobile app as a strategy for strengthening the continuity of care can be cautiously implemented for discharged self-harm patients during the transition from hospital to a community setting. "

**INTRODUCTION**

2a) In INTRODUCTION: Scientific background and explanation of rationale



### 2a-i) Problem and the type of system/solution

Describe the problem and the type of system/solution that is object of the study: intended as stand-alone intervention vs. incorporated in broader health care program? Intended for a particular patient population? Goals of the intervention, e.g., being more cost-effective to other interventions, replace or complement other solutions? (Note: Details about the intervention are provided in "Methods" under 5)

subitem not at all important

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Clear selection

### Does your paper address subitem 2a-i? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The aims of the study reported herein were to determine whether community-based caring contact via a mobile app with or without volunteer support, in addition to TAU (psychiatric and psychosocial treatments), is effective in reducing the suicide risk among post-discharge self-harm young adults and to generate empirical evidence on the use of these interventions as an engagement tool to support this high-risk group, who often default on prescribed treatments. "





2a-ii) Scientific background, rationale: What is known about the (type of) system  
Scientific background, rationale: What is known about the (type of) system that is the object of the study (be sure to discuss the use of similar systems for other conditions/diagnoses, if appropriate), motivation for the study, i.e. what are the reasons for and what is the context for this specific study, from which stakeholder viewpoint is the study performed, potential impact of findings [2]. Briefly justify the choice of the comparator.

subitem not at all important

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Clear selection

Does your paper address subitem 2a-ii? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The interpersonal-psychological theory of suicide (IPTs) provides a theoretical explanation, positing that social connectedness and assurance buffer against perceived loneliness and burdensomeness, which are closely related to hopelessness and suicidal behaviors (Joiner, 2005; Joiner et al., 2002; Van Orden et al., 2010, 2021). The theory suggests that thwarted belongingness (TB, "I am alone") and perceived burdensomeness (PB, "I am a burden") are two modifiable, and distinct but related, interpersonal constructs contributing to the formulation of suicide desire and subsequent suicide attempts and death, particularly when the two factors are perceived to be hopelessly unchanging and associated with an acquired capability for or means of suicide (Van Orden et al., 2010). The specific benefits that community-based interventions can bring in reducing suicide risks among individuals discharged from a clinical setting to the community are yet to be ascertained."



**2b) In INTRODUCTION: Specific objectives or hypotheses**

Does your paper address CONSORT subitem 2b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The aims of the study reported herein were to determine whether community-based caring contact via a mobile app with or without volunteer support, in addition to TAU (psychiatric and psychosocial treatments), is effective in reducing the suicide risk among post-discharge self-harm young adults and to generate empirical evidence on the use of these interventions as an engagement tool to support this high-risk group, who often default on prescribed treatments. "

**METHODS****3a) Description of trial design (such as parallel, factorial) including allocation ratio**

Does your paper address CONSORT subitem 3a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Parallel arm design - see CONSORT diagram (Figure 1).

**3b) Important changes to methods after trial commencement (such as eligibility criteria), with reasons**

Does your paper address CONSORT subitem 3b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Age cutoff was extended to 45 years due to difficulty recruiting participants. Only one user was recruited this way and the impact to the overall study is minimal.

3b-i) Bug fixes, Downtimes, Content Changes

Bug fixes, Downtimes, Content Changes: ehealth systems are often dynamic systems. A description of changes to methods therefore also includes important changes made on the intervention or comparator during the trial (e.g., major bug fixes or changes in the functionality or content) (5-iii) and other "unexpected events" that may have influenced study design such as staff changes, system failures/downtimes, etc. [2].

subitem not at all important

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Does your paper address subitem 3b-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

4a) Eligibility criteria for participants



Does your paper address CONSORT subitem 4a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

4a-i) Computer / Internet literacy

Computer / Internet literacy is often an implicit "de facto" eligibility criterion - this should be explicitly clarified.

subitem not at all important

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Clear selection

Does your paper address subitem 4a-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Researcher also walked through the navigation of the mobile application with the participants and addressed all the questions that participants raised to ensure the level of computer / Internet literacy would not affect their ability to receive information/intervention via the mobile application.



**4a-ii) Open vs. closed, web-based vs. face-to-face assessments:**

Open vs. closed, web-based vs. face-to-face assessments: Mention how participants were recruited (online vs. offline), e.g., from an open access website or from a clinic, and clarify if this was a purely web-based trial, or there were face-to-face components (as part of the intervention or for assessment), i.e., to what degree got the study team to know the participant. In online-only trials, clarify if participants were quasi-anonymous and whether having multiple identities was possible or whether technical or logistical measures (e.g., cookies, email confirmation, phone calls) were used to detect/prevent these.

subitem not at all important

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[Clear selection](#)**Does your paper address subitem 4a-ii? \***

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Patients admitted to the emergency departments of the participating hospitals followed the usual medical protocols before being identified by a doctor or psychiatric nurse as potential participants who met both the inclusion and exclusion criteria. The research team then contacted those who met the criteria and explained the study to them in detail, including the randomization to different groups and ethical concerns, and obtained their written informed consent to participate in the study. After such consent was received, a 20-minute questionnaire was administered to participants during a face-to-face interview (T0). All participants were notified via a downloaded mobile app of the group to which they had been assigned and began receiving the corresponding intervention."



#### 4a-iii) Information giving during recruitment

Information given during recruitment. Specify how participants were briefed for recruitment and in the informed consent procedures (e.g., publish the informed consent documentation as appendix, see also item X26), as this information may have an effect on user self-selection, user expectation and may also bias results.

subitem not at all important

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Clear selection

#### Does your paper address subitem 4a-iii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The research team then physically met up with those who met the criteria at the hospital and explained the study to them in detail, including the randomization to different groups and ethical concerns, and obtained their written informed consent to participate in the study.

#### 4b) Settings and locations where the data were collected



Does your paper address CONSORT subitem 4b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"All participants completed the questionnaire at T0 during a face-to-face interview with a research team member soon before or after hospital discharge". Remaining surveys were conducted after hospital discharge.

4b-i) Report if outcomes were (self-)assessed through online questionnaires

Clearly report if outcomes were (self-)assessed through online questionnaires (as common in web-based trials) or otherwise.

subitem not at all important

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Clear selection



**Does your paper address subitem 4b-i? \***

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The expected outcomes were a reduction in suicidal ideation, hopelessness, TB, and PB total scores and an increase in compliance with professional help. Suicidal ideation was measured by the self-report Chinese version of the four-item short form of the Adult Suicidal Ideation Questionnaire (ASIQ4), which has been demonstrated to exhibit a modest level of sensitivity (64%) and superior specificity (76%), as well as a positive predictive value of 8.4% on non-fatal suicidality and suicide deaths at the cut-off of 1 (Fu et al., 2007). Hopelessness was measured by the self-report 4-item short form (BHS4) of the Beck Hopelessness Scale (BHS; Beck et al., 1974), which was tested in a local panel survey (Yip and Cheung, 2006) based on the Chinese version developed by Shek (1993). The BHS4 is highly correlated (.88) with the BHS, and its AUC (95% CI) (0.70; 0.65–0.75) is as strong as that of the BHS in identifying people with suicidal ideation. The cut-off score of 11 for suicidal ideation provides 65.8% sensitivity and 67.3% specificity (Yip and Cheung, 2006). TB and PB were assessed by the Interpersonal Needs Questionnaire (INQ), a 15-item measure of beliefs about whether one's need to belong is met or unmet and self-perceptions of being a burden to others. Each item is rated on a 7-point Likert scale, with higher scores indicating higher levels of TB and PB (Van Orden et al., 2012). Self-reported compliance with prescribed treatment (frequency) in relation to the index self-harm episode, including psychiatric follow-up care (e.g., medication, out-patient follow-up treatment, and community psychiatric nursing service) and psycho-social services (e.g., clinical psychology service, medical social work service), as well as obtaining informal help from families and friends, was measured by a self-developed service utilization checklist. Depressive state was treated as a covariate and measured by the Center for Epidemiological Studies Depression Scale (CESD; Cheung and Bagley, 1998). CESD scores measured by two factors, an affective and somatic symptom factor and an interpersonal problem factor that patients encountered in the past week, were controlled in growth models. "





**4b-ii) Report how institutional affiliations are displayed**

Report how institutional affiliations are displayed to potential participants [on ehealth media], as affiliations with prestigious hospitals or universities may affect volunteer rates, use, and reactions with regards to an intervention. (Not a required item – describe only if this may bias results)

subitem not at all important

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Clear selection

**Does your paper address subitem 4b-ii?**

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

All four hospitals were run by the Hospital Authority.

5) The interventions for each group with sufficient details to allow replication, including how and when they were actually administered



5-i) Mention names, credential, affiliations of the developers, sponsors, and owners  
Mention names, credential, affiliations of the developers, sponsors, and owners [6] (if authors/evaluators are owners or developer of the software, this needs to be declared in a "Conflict of interest" section or mentioned elsewhere in the manuscript).

subitem not at all important

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essential

Clear selection

Does your paper address subitem 5-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

A professional software company was hired to develop this app. Their participation in limited to the app development level only.



### 5-ii) Describe the history/development process

Describe the history/development process of the application and previous formative evaluations (e.g., focus groups, usability testing), as these will have an impact on adoption/use rates and help with interpreting results.

subitem not at all important

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Clear selection

### Does your paper address subitem 5-ii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Unit tests and usability testing were carried out before final app deployment.



### 5-iii) Revisions and updating

Revisions and updating. Clearly mention the date and/or version number of the application/intervention (and comparator, if applicable) evaluated, or describe whether the intervention underwent major changes during the evaluation process, or whether the development and/or content was “frozen” during the trial. Describe dynamic components such as news feeds or changing content which may have an impact on the replicability of the intervention (for unexpected events see item 3b).

subitem not at all important

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essential

Clear selection

### Does your paper address subitem 5-iii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

App shows random positive messages of the day, scheduled appointment reminders, important phone numbers, survey question sets, plus other static content.



#### 5-iv) Quality assurance methods

Provide information on quality assurance methods to ensure accuracy and quality of information provided [1], if applicable.

subitem not at all important

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Clear selection

#### Does your paper address subitem 5-iv?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The most up-to-date information is used to create the mental health information library.



5-v) Ensure replicability by publishing the source code, and/or providing screenshots/screen-capture video, and/or providing flowcharts of the algorithms used

Ensure replicability by publishing the source code, and/or providing screenshots/screen-capture video, and/or providing flowcharts of the algorithms used. Replicability (i.e., other researchers should in principle be able to replicate the study) is a hallmark of scientific reporting.

subitem not at all important

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Clear selection

Does your paper address subitem 5-v?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The software is a standard info-based app. No proprietary algorithm is used in the study.



### 5-vi) Digital preservation

Digital preservation: Provide the URL of the application, but as the intervention is likely to change or disappear over the course of the years; also make sure the intervention is archived (Internet Archive, [webcitation.org](https://www.webcitation.org), and/or publishing the source code or screenshots/videos alongside the article). As pages behind login screens cannot be archived, consider creating demo pages which are accessible without login.

subitem not at all important

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Clear selection

### Does your paper address subitem 5-vi?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

See App Store link above. Apple already took down the application.



### 5-vii) Access

Access: Describe how participants accessed the application, in what setting/context, if they had to pay (or were paid) or not, whether they had to be a member of specific group. If known, describe how participants obtained "access to the platform and Internet" [1]. To ensure access for editors/reviewers/readers, consider to provide a "backdoor" login account or demo mode for reviewers/readers to explore the application (also important for archiving purposes, see vi).

subitem not at all important

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Clear selection

### Does your paper address subitem 5-vii? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Grocery gift coupons were offered as incentives for every questionnaire completed thereafter."





5-viii) Mode of delivery, features/functionality/components of the intervention and comparator, and the theoretical framework

Describe mode of delivery, features/functionality/components of the intervention and comparator, and the theoretical framework [6] used to design them (instructional strategy [1], behaviour change techniques, persuasive features, etc., see e.g., [7, 8] for terminology). This includes an in-depth description of the content (including where it is coming from and who developed it) [1], "whether [and how] it is tailored to individual circumstances and allows users to track their progress and receive feedback" [6]. This also includes a description of communication delivery channels and – if computer-mediated communication is a component – whether communication was synchronous or asynchronous [6]. It also includes information on presentation strategies [1], including page design principles, average amount of text on pages, presence of hyperlinks to other resources, etc. [1].

subitem not at all important

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Clear selection

Does your paper address subitem 5-viii? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Please see Table 1 in manuscript.



### 5-ix) Describe use parameters

Describe use parameters (e.g., intended "doses" and optimal timing for use). Clarify what instructions or recommendations were given to the user, e.g., regarding timing, frequency, heaviness of use, if any, or was the intervention used ad libitum.

subitem not at all important

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Clear selection

### Does your paper address subitem 5-ix?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The surveys given during each timepoint asked users to self-report service use and helpseeking behavior.



### 5-x) Clarify the level of human involvement

Clarify the level of human involvement (care providers or health professionals, also technical assistance) in the e-intervention or as co-intervention (detail number and expertise of professionals involved, if any, as well as “type of assistance offered, the timing and frequency of the support, how it is initiated, and the medium by which the assistance is delivered”. It may be necessary to distinguish between the level of human involvement required for the trial, and the level of human involvement required for a routine application outside of a RCT setting (discuss under item 21 – generalizability).

subitem not at all important

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Clear selection



Does your paper address subitem 5-x?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

All three arms involve some degree of human involvement, i.e. doctors administrating TAU.

"For the intervention arm, volunteers aged 25 or above with at least a bachelor's degree were recruited and asked to attend six 3-hour training sessions on specific topics, including basic knowledge on suicide prevention, suicide risk screening skills, and empathetic communication skills. A similar intervention was examined in a pilot study and found to be effective in reducing depressive symptoms and hopelessness (Law et al., 2016). Volunteers who completed the training and met the assessment criteria were invited to take part in the study. They were then matched with cases allocated to the App+Vol+TAU group in pairs and asked to make the first contact with the patients concerned within 24 hours of the assignment. Volunteers' duties included initiating at least two contacts per week with the assigned patients, having at least one face-to-face meeting with them per month, conducting suicide risk screening, and sending supportive messages and reminders of follow-up treatment. They were also required to report back on the patients' progress and attend in-service training and supervision sessions (Table 1). A total of 85 volunteers applied, 29 of whom were selected to join the training sessions. Of those, 17 completed the training and committed to a service contract with a list of duties and promised to comply with ethical practices. Eleven participants were successfully paired with trained volunteers. "



### 5-xi) Report any prompts/reminders used

Report any prompts/reminders used: Clarify if there were prompts (letters, emails, phone calls, SMS) to use the application, what triggered them, frequency etc. It may be necessary to distinguish between the level of prompts/reminders required for the trial, and the level of prompts/reminders for a routine application outside of a RCT setting (discuss under item 21 – generalizability).

subitem not at all important

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Clear selection

### Does your paper address subitem 5-xi? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The main components of the mobile app were positive quotes/messages displayed on the home page, a mental health information library, emergency information, including the number of a 24-hour suicide prevention hotline, a medical follow-up appointment reminder, a survey, a user feedback form, and, if applicable, volunteer support services (see Table 1)."



**5-xii) Describe any co-interventions (incl. training/support)**

Describe any co-interventions (incl. training/support): Clearly state any interventions that are provided in addition to the targeted eHealth intervention, as ehealth intervention may not be designed as stand-alone intervention. This includes training sessions and support [1]. It may be necessary to distinguish between the level of training required for the trial, and the level of training for a routine application outside of a RCT setting (discuss under item 21 – generalizability).

subitem not at all important

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Clear selection

**Does your paper address subitem 5-xii? \***

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The app demo is carried out during a "face-to-face interview with a research team member soon before or after hospital discharge."

6a) Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed



Does your paper address CONSORT subitem 6a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The expected outcomes were a reduction in suicidal ideation, hopelessness, TB, and PB total scores and an increase in compliance with professional help. Suicidal ideation was measured by the self-report Chinese version of the four-item short form of the Adult Suicidal Ideation Questionnaire (ASIQ4), which has been demonstrated to exhibit a modest level of sensitivity (64%) and superior specificity (76%), as well as a positive predictive value of 8.4% on non-fatal suicidality and suicide deaths at the cut-off of 1 (Fu et al., 2007). Hopelessness was measured by the self-report 4-item short form (BHS4) of the Beck Hopelessness Scale (BHS; Beck et al., 1974), which was tested in a local panel survey (Yip and Cheung, 2006) based on the Chinese version developed by Shek (1993). The BHS4 is highly correlated (.88) with the BHS, and its AUC (95% CI) (0.70; 0.65–0.75) is as strong as that of the BHS in identifying people with suicidal ideation. The cut-off score of 11 for suicidal ideation provides 65.8% sensitivity and 67.3% specificity (Yip and Cheung, 2006). TB and PB were assessed by the Interpersonal Needs Questionnaire (INQ), a 15-item measure of beliefs about whether one's need to belong is met or unmet and self-perceptions of being a burden to others. Each item is rated on a 7-point Likert scale, with higher scores indicating higher levels of TB and PB (Van Orden et al., 2012). Self-reported compliance with prescribed treatment (frequency) in relation to the index self-harm episode, including psychiatric follow-up care (e.g., medication, out-patient follow-up treatment, and community psychiatric nursing service) and psycho-social services (e.g., clinical psychology service, medical social work service), as well as obtaining informal help from families and friends, was measured by a self-developed service utilization checklist. Depressive state was treated as a covariate and measured by the Center for Epidemiological Studies Depression Scale (CESD; Cheung and Bagley, 1998). CESD scores measured by two factors, an affective and somatic symptom factor and an interpersonal problem factor that patients encountered in the past week, were controlled in growth models. "



6a-i) Online questionnaires: describe if they were validated for online use and apply CHERRIES items to describe how the questionnaires were designed/deployed

If outcomes were obtained through online questionnaires, describe if they were validated for online use and apply CHERRIES items to describe how the questionnaires were designed/deployed [9].

subitem not at all important

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Does your paper address subitem 6a-i?

Copy and paste relevant sections from manuscript text

Your answer





6a-ii) Describe whether and how “use” (including intensity of use/dosage) was defined/measured/monitored

Describe whether and how “use” (including intensity of use/dosage) was defined/measured/monitored (logins, logfile analysis, etc.). Use/adoption metrics are important process outcomes that should be reported in any ehealth trial.

subitem not at all important

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Does your paper address subitem 6a-ii?

Copy and paste relevant sections from manuscript text

Your answer



6a-iii) Describe whether, how, and when qualitative feedback from participants was obtained

Describe whether, how, and when qualitative feedback from participants was obtained (e.g., through emails, feedback forms, interviews, focus groups).

subitem not at all important

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Clear selection

Does your paper address subitem 6a-iii?

Copy and paste relevant sections from manuscript text

Researchers also reached out to participants in T3 (i.e., post intervention period) via phone calls to obtain qualitative feedback (e.g., their thoughts on the content of the mobile application and ways to improve their overall experience with the intervention).

6b) Any changes to trial outcomes after the trial commenced, with reasons

Does your paper address CONSORT subitem 6b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

No change to trial outcomes.



**7a) How sample size was determined**

NPT: When applicable, details of whether and how the clustering by care providers or centers was addressed

**7a-i) Describe whether and how expected attrition was taken into account when calculating the sample size**

Describe whether and how expected attrition was taken into account when calculating the sample size.

subitem not at all important

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Clear selection

**Does your paper address subitem 7a-i?**

Copy and paste relevant sections from manuscript title (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

" The a priori estimated sample size for each group was 36, with projected retention rates of 80%, 70%, and 60% at T1, T2, and T3, respectively, a two-sided significance level ( $\alpha$ ) of 0.05, and statistical power ( $1-\beta$ ) of 0.8 (Lu et al., 2008)."

**7b) When applicable, explanation of any interim analyses and stopping guidelines**

Does your paper address CONSORT subitem 7b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Analysis was carried out at the end of the study period.

8a) Method used to generate the random allocation sequence

NPT: When applicable, how care providers were allocated to each trial group

Does your paper address CONSORT subitem 8a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Pseudorandom generator was used to assign users to groups.

8b) Type of randomisation; details of any restriction (such as blocking and block size)

Does your paper address CONSORT subitem 8b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Participants were assigned to groups by simple random sampling."



9) Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned

Does your paper address CONSORT subitem 9? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Screened and consented recruits were assigned an incremental participant id, each of which was pre-mapped to a group using a pseudorandom generator from a website.

10) Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions

Does your paper address CONSORT subitem 10? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

C.S. Lai, a co-author, managed the sequence allocation and enrollment.

11a) If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how  
NPT: Whether or not administering co-interventions were blinded to group assignment



**11a-i) Specify who was blinded, and who wasn't**

Specify who was blinded, and who wasn't. Usually, in web-based trials it is not possible to blind the participants [1, 3] (this should be clearly acknowledged), but it may be possible to blind outcome assessors, those doing data analysis or those administering co-interventions (if any).

subitem not at all important

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Clear selection

**Does your paper address subitem 11a-i? \***

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Participants will know if they belong to one of the three groups due to the way the experiment was set up. TAU component was blinded and was received by all participants.



**11a-ii)** Discuss e.g., whether participants knew which intervention was the “intervention of interest” and which one was the “comparator”

Informed consent procedures (4a-ii) can create biases and certain expectations - discuss e.g., whether participants knew which intervention was the “intervention of interest” and which one was the “comparator”.

subitem not at all important

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Clear selection

**Does your paper address subitem 11a-ii?**

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

All participants were notified via a downloaded mobile app of the group to which they had been assigned and began receiving the corresponding intervention. It is crucial for participants to know which group they were assigned to because it would allow them to have reasonable expectations in this study, especially those in the control group, and know what interventions they could get access to (e.g., contacting volunteers).

**11b) If relevant, description of the similarity of interventions**

(this item is usually not relevant for ehealth trials as it refers to similarity of a placebo or sham intervention to a active medication/intervention)



Does your paper address CONSORT subitem 11b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"TAU was prescribed by the hospitals as per individual patients' medical conditions, which may include psychiatric out-patient follow-up, medication, and psychosocial interventions related to the index self-harm episode. "

12a) Statistical methods used to compare groups for primary and secondary outcomes

NPT: When applicable, details of whether and how the clustering by care providers or centers was addressed

Does your paper address CONSORT subitem 12a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Chi-square tests (categorical variables) and t-tests (continuous variables) at a .05 level of significance ( $p < .05$ ) were performed to detect differences in the distribution of the key variables, i.e., age, sex, hospital, and depressive state, among the three groups. Correlations among the measurements were also tested at T0 to verify their associations with one another at baseline."

"A growth model with varying intercept and slope was fitted to capture both the fixed effects of averages across individuals and the random effects of individual deviations from those averages (Hesser, 2015). In standard frequentist regression, a small sample size with high degrees of sample variation and dropouts limits the degrees of freedom of data variance. To retain Eq. (1), keeping as many predictors and covariates as possible, Bayesian inference with Hamiltonian Monte Carlo sampling was adopted in the analysis to account for (in-)group differences that might arise from the unequal allocation of participants in simple random sampling. "





### 12a-i) Imputation techniques to deal with attrition / missing values

Imputation techniques to deal with attrition / missing values: Not all participants will use the intervention/comparator as intended and attrition is typically high in ehealth trials. Specify how participants who did not use the application or dropped out from the trial were treated in the statistical analysis (a complete case analysis is strongly discouraged, and simple imputation techniques such as LOCF may also be problematic [4]).

subitem not at all important

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### Does your paper address subitem 12a-i? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"When a longitudinal study contains a considerable amount of missing data, Chakraborty and Gu (2009) recommend that ITT analysis be carried out using mixed-effect modeling without imputation to minimize the loss of statistical power. Because the growth model is also known as a linear mixed-effects model, ITT analysis would have been automatically conducted in tandem to minimize bias. "

### 12b) Methods for additional analyses, such as subgroup analyses and adjusted analyses



Does your paper address CONSORT subitem 12b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The actual choice of components that make up Xit was identified by principal component analysis. Subgroup attributes explaining less than 1% of the variance were dropped from the final specification to improve the model fit. All parameters were standardized before model fitting to speed up convergence. "

X26) REB/IRB Approval and Ethical Considerations [recommended as subheading under "Methods"] (not a CONSORT item)

X26-i) Comment on ethics committee approval

subitem not at all important

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Clear selection



Does your paper address subitem X26-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"With reference to ethical approval, we are bound to observe and comply with all applicable requirements under the Hospital Authority's standard operating procedure, the Declaration of Helsinki, and the ICH GCP (if applicable)"

x26-ii) Outline informed consent procedures

Outline informed consent procedures e.g., if consent was obtained offline or online (how? Checkbox, etc.), and what information was provided (see 4a-ii). See [6] for some items to be included in informed consent documents.

subitem not at all important

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Clear selection

Does your paper address subitem X26-ii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The research team then physically met up with those who met the criteria at the hospital and explained the study to them in detail, including the randomization to different groups and ethical concerns, and obtained their written informed consent to participate in the study.



**X26-iii) Safety and security procedures**

Safety and security procedures, incl. privacy considerations, and any steps taken to reduce the likelihood or detection of harm (e.g., education and training, availability of a hotline)

subitem not at all important

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Clear selection

**Does your paper address subitem X26-iii?**

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

All cases received treatment as usual from the hospitals where they were admitted to. For those in the intervention group of Vol+APP, regular supervision was provided to volunteers who offered ongoing support to cases during the intervention period. Volunteers were trained to do basic screening of suicide ideation and self-harm.

**RESULTS**

13a) For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome  
NPT: The number of care providers or centers performing the intervention in each group and the number of patients treated by each care provider in each center



Does your paper address CONSORT subitem 13a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

This is already addressed by CONSORT flow diagram in Figure 1.

13b) For each group, losses and exclusions after randomisation, together with reasons

Does your paper address CONSORT subitem 13b? (NOTE: Preferably, this is shown in a CONSORT flow diagram) \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

This is already addressed by CONSORT flow diagram in Figure 1.



### 13b-i) Attrition diagram

Strongly recommended: An attrition diagram (e.g., proportion of participants still logging in or using the intervention/comparator in each group plotted over time, similar to a survival curve) or other figures or tables demonstrating usage/dose/engagement.

subitem not at all important

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Clear selection

### Does your paper address subitem 13b-i?

Copy and paste relevant sections from the manuscript or cite the figure number if applicable (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Results were self-reported, not monitored.

### 14a) Dates defining the periods of recruitment and follow-up



Does your paper address CONSORT subitem 14a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Participants, after providing informed written consent for participation, were randomly assigned to one of three groups, 1) mobile app + TAU (App+TAU), 2) mobile app + volunteer support + TAU (App+Vol+TAU), or 3) TAU-only as the control group (TAU), for a three-month observation with four measurement time points (T0 = baseline; T1 = one month; T2 = two months; T3 = three months after T0 (at post-intervention))."

14a-i) Indicate if critical "secular events" fell into the study period

Indicate if critical "secular events" fell into the study period, e.g., significant changes in Internet resources available or "changes in computer hardware or Internet delivery resources"

subitem not at all important

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Clear selection

Does your paper address subitem 14a-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Recruitment at the emergency departments was periodically suspended in 2019 owing to social unrest and in 2020 in the wake of the COVID-19 outbreak"



**14b) Why the trial ended or was stopped (early)**

Does your paper address CONSORT subitem 14b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Recruitment at the emergency departments was periodically suspended in 2019 owing to social unrest and in 2020 in the wake of the COVID-19 outbreak"

**15) A table showing baseline demographic and clinical characteristics for each group**

NPT: When applicable, a description of care providers (case volume, qualification, expertise, etc.) and centers (volume) in each group

Does your paper address CONSORT subitem 15? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

See Tables 2 and 3 in manuscript.





### 15-i) Report demographics associated with digital divide issues

In ehealth trials it is particularly important to report demographics associated with digital divide issues, such as age, education, gender, social-economic status, computer/Internet/ehealth literacy of the participants, if known.

subitem not at all important

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Clear selection

### Does your paper address subitem 15-i? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The age range of 18–45 was considered appropriate in the local context because young adults in this group are likely to be receptive to an approach by volunteers and prone to using such communication modes as social media and smartphones (C&SD, 2022)"

"The smartphone penetration rate in Hong Kong rose from 92.1% in 2020 to 92.9% in 2021 (C&SD, 2022), with the rise particularly notable during the COVID-19 pandemic. Mobile apps have become part of people's decision-making and problem-solving. For example, they have been widely used for information-sharing, risk assessment, training, and self-management during the pandemic (see Kondylakis et al., 2020). With such a wide reach and the ability to be offered at very low cost, digital support seems to be a viable auxiliary for individuals at risk of suicide when standardized medical follow-up care is made available as a necessary component. "

16) For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups



### 16-i) Report multiple “denominators” and provide definitions

Report multiple “denominators” and provide definitions: Report N’s (and effect sizes) “across a range of study participation [and use] thresholds” [1], e.g., N exposed, N consented, N used more than x times, N used more than y weeks, N participants “used” the intervention/comparator at specific pre-defined time points of interest (in absolute and relative numbers per group). Always clearly define “use” of the intervention.

subitem not at all important

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Clear selection

### Does your paper address subitem 16-i? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Most of it is addressed in the CONSORT diagram and the descriptive stat tables.



### 16-ii) Primary analysis should be intent-to-treat

Primary analysis should be intent-to-treat, secondary analyses could include comparing only “users”, with the appropriate caveats that this is no longer a randomized sample (see 18-i).

subitem not at all important

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essential

Clear selection

### Does your paper address subitem 16-ii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Because the growth model is also known as a linear mixed-effects model, ITT analysis would have been automatically conducted in tandem to minimize bias."

17a) For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)



Does your paper address CONSORT subitem 17a? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

See Table 4, and

"The proportions of reported compliance with service treatment and the seeking of professional and informal help in the App+TAU and App+Vol+TAU groups were much higher in general than that in the TAU group. These observations were comparable with the results of the growth model after controlling for the level covariate, i.e., CESD, and unobserved latent groups. In particular, when all three intervention timepoints (T0, T1, and T2) were considered, the App+TAU intervention was able to reduce BHS4 scores more effectively than either TAU or App+Vol+TAU. The calculated mean effect size  $d$  was large at 1.15, reinforced by the fact that the App+TAU group had only 1.6% of ROPE overlapping with the 89% HDI region. There was a 98% chance that a reduction was observed in the App+TAU arm relative to TAU. As it may take some time for an intervention to take effect, it was more sensible to compare data between timepoints T0 and T2. After dropping T1 from the model, the region of overlap between App+TAU and BHS4 fell to 0.7%, whereas  $d$  increased to 1.33 and the posterior probability increased to 99%. Both the volunteer care and app interventions were also more effective in bringing down the overall INQ, at  $d$  0.76 and  $d$  0.60, respectively. Much of the change was due to a noticeable fall in TB scores in App+TAU and App+Vol+TAU relative to TAU, as indicated by  $d \geq 0.47$ , a promising medium effect. A larger sample size would be needed to fully reject the null hypothesis, as 7.6% of ROPE at most overlapped with the credible interval. Despite having a small calculated effect size of 0.22, treatment by App+Vol+TAU has the potential to lower ASIQ4 scores over time. See Table 4 for the estimated standardized treatment effects and calculated mean effect sizes at timepoints T0 and T2. A larger sample size is needed to ascertain the mediation effects in the interventions, i.e., to verify the existence of causal pathway TB->BHS->ASIQ. "



### 17a-i) Presentation of process outcomes such as metrics of use and intensity of use

In addition to primary/secondary (clinical) outcomes, the presentation of process outcomes such as metrics of use and intensity of use (dose, exposure) and their operational definitions is critical. This does not only refer to metrics of attrition (13-b) (often a binary variable), but also to more continuous exposure metrics such as "average session length". These must be accompanied by a technical description how a metric like a "session" is defined (e.g., timeout after idle time) [1] (report under item 6a).

subitem not at all important

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essential

### Does your paper address subitem 17a-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

17b) For binary outcomes, presentation of both absolute and relative effect sizes is recommended



Does your paper address CONSORT subitem 17b? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Primary outcomes are not binary.

18) Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory

Does your paper address CONSORT subitem 18? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The proportions of reported compliance with service treatment and the seeking of professional and informal help in the App+TAU and App+Vol+TAU groups were much higher in general than that in the TAU group. These observations were comparable with the results of the growth model after controlling for the level covariate, i.e., CESD, and unobserved latent groups. In particular, when all three intervention timepoints (T0, T1, and T2) were considered, the App+TAU intervention was able to reduce BHS4 scores more effectively than either TAU or App+Vol+TAU. The calculated mean effect size  $d$  was large at 1.15, reinforced by the fact that the App+TAU group had only 1.6% of ROPE overlapping with the 89% HDI region. There was a 98% chance that a reduction was observed in the App+TAU arm relative to TAU. As it may take some time for an intervention to take effect, it was more sensible to compare data between timepoints T0 and T2. After dropping T1 from the model, the region of overlap between App+TAU and BHS4 fell to 0.7%, whereas  $d$  increased to 1.33 and the posterior probability increased to 99%. Both the volunteer care and app interventions were also more effective in bringing down the overall INQ, at  $d$  0.76 and  $d$  0.60, respectively. Much of the change was due to a noticeable fall in TB scores in App+TAU and App+Vol+TAU relative to TAU, as indicated by  $d \geq 0.47$ , a promising medium effect. A larger sample size would be needed to fully reject the null hypothesis, as 7.6% of ROPE at most overlapped with the credible interval. Despite having a small calculated effect size of 0.22, treatment by App+Vol+TAU has the potential to lower ASI4 scores over time. See Table 4 for the estimated standardized treatment effects and calculated mean effect sizes at timepoints T0 and T2. A larger sample size is needed to ascertain the mediation effects in the interventions, i.e., to verify the existence of causal pathway TB->BHS->ASI4. "



### 18-i) Subgroup analysis of comparing only users

A subgroup analysis of comparing only users is not uncommon in ehealth trials, but if done, it must be stressed that this is a self-selected sample and no longer an unbiased sample from a randomized trial (see 16-iii).

subitem not at all important

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essential

### Does your paper address subitem 18-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

### 19) All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)



Does your paper address CONSORT subitem 19? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"Recruitment at the emergency departments was periodically suspended in 2019 owing to social unrest and in 2020 in the wake of the COVID-19 outbreak, which led to a small sample size with a higher number of participants in the TAU group and a high attrition rate of between 55% and 63% at T1. The overall attrition rate measured at the end of the intervention at T2 was 33.3–36.4%."

19-i) Include privacy breaches, technical problems

Include privacy breaches, technical problems. This does not only include physical "harm" to participants, but also incidents such as perceived or real privacy breaches [1], technical problems, and other unexpected/unintended incidents. "Unintended effects" also includes unintended positive effects [2].

subitem not at all important

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Does your paper address subitem 19-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer





19-ii) Include qualitative feedback from participants or observations from staff/researchers

Include qualitative feedback from participants or observations from staff/researchers, if available, on strengths and shortcomings of the application, especially if they point to unintended/unexpected effects or uses. This includes (if available) reasons for why people did or did not use the application as intended by the developers.

subitem not at all important

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Does your paper address subitem 19-ii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

DISCUSSION

22) Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence

NPT: In addition, take into account the choice of the comparator, lack of or partial blinding, and unequal expertise of care providers or centers in each group



22-i) Restate study questions and summarize the answers suggested by the data, starting with primary outcomes and process outcomes (use)

Restate study questions and summarize the answers suggested by the data, starting with primary outcomes and process outcomes (use).

subitem not at all important

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essential

Clear selection

Does your paper address subitem 22-i? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"More evidence on the use of apps to treat people with mental health issues has emerged in recent years, but is not conclusive. For example, use of an app as part of clinical treatment for suicide prevention was unexpectedly found to exert negative effects on suicide risk reduction in an adult clinical sample with mild to moderate symptoms of anxiety, depression, and adjustment disorders (O'Toole et al., 2019). Another app (LifeBuoy) with therapeutic elements, however, was recently shown to reduce suicidal ideation to a moderate degree in a much larger community sample of young adults (N = 455) (Torok et al., 2022). "



22-ii) Highlight unanswered new questions, suggest future research

Highlight unanswered new questions, suggest future research.

subitem not at all important

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essential

Does your paper address subitem 22-ii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

20) Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses



## 20-i) Typical limitations in ehealth trials

Typical limitations in ehealth trials: Participants in ehealth trials are rarely blinded. Ehealth trials often look at a multiplicity of outcomes, increasing risk for a Type I error. Discuss biases due to non-use of the intervention/usability issues, biases through informed consent procedures, unexpected events.

subitem not at all important

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essential

## Does your paper address subitem 20-i? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The social unrest in 2019 and COVID-19 pandemic from 2020 onwards took a heavy toll on this research study, particularly given that the sole recruitment sites were hospitals. Although we adopted several measures to increase the case admission rate, including briefings with medical staff, the multiple outbreaks of COVID-19 in 2020–2021 resulted in the full suspension of research at hospital sites. The study's sample size was thus suboptimal, limiting the external validity of its findings. The volunteer support intervention was also unexpectedly interrupted from time to time. Face-to-face contact was difficult to render during the aforementioned trying periods. Nevertheless, all of the volunteers involved in the study offered their unflinching support to the participants and exercised incredible patience and care. "

## 21) Generalisability (external validity, applicability) of the trial findings

NPT: External validity of the trial findings according to the intervention, comparators, patients, and care providers or centers involved in the trial



### 21-i) Generalizability to other populations

Generalizability to other populations: In particular, discuss generalizability to a general Internet population, outside of a RCT setting, and general patient population, including applicability of the study results for other organizations

subitem not at all important

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### Does your paper address subitem 21-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer



21-ii) Discuss if there were elements in the RCT that would be different in a routine application setting

Discuss if there were elements in the RCT that would be different in a routine application setting (e.g., prompts/reminders, more human involvement, training sessions or other co-interventions) and what impact the omission of these elements could have on use, adoption, or outcomes if the intervention is applied outside of a RCT setting.

subitem not at all important

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Does your paper address subitem 21-ii?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

Your answer

OTHER INFORMATION

23) Registration number and name of trial registry



Does your paper address CONSORT subitem 23? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"The study was approved by the Institutional Review Boards of the Hospital Authority Research Ethics Committee across four public hospitals (NDH CREC Ref. No: 2016.155-T; PY REC Ref. No.: HKECREC-2017-002; QMH IRB Ref. No.: UW 16-181; TKO/UCH Ref: KC/KE-16-0027/FR) and registered with the U.S. National Institutes of Health Clinical Trials Registry (Identifier: NCT03081078). With reference to ethical approval, we are bound to observe and comply with all applicable requirements under the Hospital Authority's standard operating procedure, the Declaration of Helsinki, and the ICH GCP (if applicable). This study is also registered in a clinical trial registry (ClinicalTrials.gov) (Identifiers: NCT03081078)."

24) Where the full trial protocol can be accessed, if available

Does your paper address CONSORT subitem 24? \*

Cite a Multimedia Appendix, other reference, or copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

The proposal submitted to the University Grants Committee serves as the full trial protocol and is summarised in the methods section.

25) Sources of funding and other support (such as supply of drugs), role of funders



Does your paper address CONSORT subitem 25? \*

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

"This research was supported by the University Grants Committee (UGC) (RGC Reference no.: 27612816). The authors would like to all participants who joined this study. We would also like to express our sincere gratitude to Dr K.L. LAW from North District Hospital, the liaison teams from Pamela Youde Nethersole Eastern Hospital and United Christian Hospital for their contribution to the case recruitment. We are also immensely grateful to Miss Chan Pik Ying and Mr Kwok Raymond for their research support. Last but not the least, we thank Erika for the English language review."

X27) Conflicts of Interest (not a CONSORT item)

X27-i) State the relation of the study team towards the system being evaluated

In addition to the usual declaration of interests (financial or otherwise), also state the relation of the study team towards the system being evaluated, i.e., state if the authors/evaluators are distinct from or identical with the developers/sponsors of the intervention.

subitem not at all important

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Clear selection





Does your paper address subitem X27-i?

Copy and paste relevant sections from the manuscript (include quotes in quotation marks "like this" to indicate direct quotes from your manuscript), or elaborate on this item by providing additional information not in the ms, or briefly explain why the item is not applicable/relevant for your study

None of the authors are panel members of the University Grants Committee.

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As a result of using this checklist, did you make changes in your manuscript? \*

- yes, major changes
- yes, minor changes
- no

What were the most important changes you made as a result of using this checklist?

Your answer

How much time did you spend on going through the checklist INCLUDING making \* changes in your manuscript

5 hours was spent on looking for items from the paper.



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- yes
- no
- Other:

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This would involve for example becoming involved in participating in a workshop and writing an "Explanation and Elaboration" document

- yes
- no
- Other:

Any other comments or questions on CONSORT EHEALTH

Your answer

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