Effective engagement strategies in digital interventions for mental health promotion: A scoping review

Maham Saleem

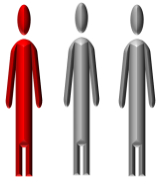
Leibniz Institute for Prevention Research and Epidemiology- BIPS

Bremen, Germany

Research Synthesis Conference 2021

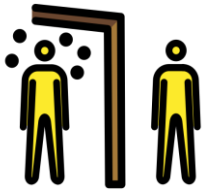
21 May 2021 (digital)

Introduction



Globally every 1 in 3 persons suffers from mental disorder

Mental health disorders have increased over time globally, highlighting the need for prevention



Quarantine measures during COVID-19 pandemic are associated with increased risk of experiencing mental health issue.

To face challenge of the increasing burden of mental disorders, and to address the demand for mental health promotion digital technologies provide one solution

Digital interventions for mental health

Can target prevention or treatment of mental health disorders.

Have potential to overcome the availability, accessibility barriers (geographical location and time) and stigmatization.

Proven effective for reducing clinical symptoms of mental health disorders and enhancing mental health promotion.

Are prone to attrition due to their self-help and unguided nature.

User’s engagement in digital technologies is critical for their effectiveness

Engagement

Engagement with digital interventions can be defined as “i) the extent of usage, and ii) a subjective experience during usage”.

Engagement is described as a multidimensional construct with seven features:

the features like frequency, duration, and amount refer to the temporal usage,	attention, interest and affect refer to users experience and behavioral aspects,	depth can be described as variety of content used.

Aim

To identify engagement strategies that facilitates user's engagement with digital intervention for mental health promotion.

To explore features of engagement measured in digital intervention for mental health promotion.

Methods

Method/ Approach

- This review was registered in OSF (https://osf.io/9xyg7) and it adheres to the PRISMA-ScR guidelines for scoping reviews

Eligibility criteria.

- The inclusion criteria were:
  - adult (18 years+) users of digital interventions for mental health promotion;
  - any digital intervention for mental health promotion;
  - user engagement strategies described in intervention design.
- The exclusion criteria were:
  - clinical populations;
  - digital interventions for the treatment of mental health disorders;
  - no or inadequate information on the engagement strategies used in the intervention;
  - no primary data (reviews).

Methods

Search

- The search was conducted in seven electronic databases: MEDLINE, the Cochrane Central Register of Controlled Trials (CENTRAL), the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Social Science Citation Index (SSCI), the Science Citation Index (SCI), the Emerging Sources Citation Index (ESCI) and PsycINFO.
- Databases were searched from inception to April 2020.

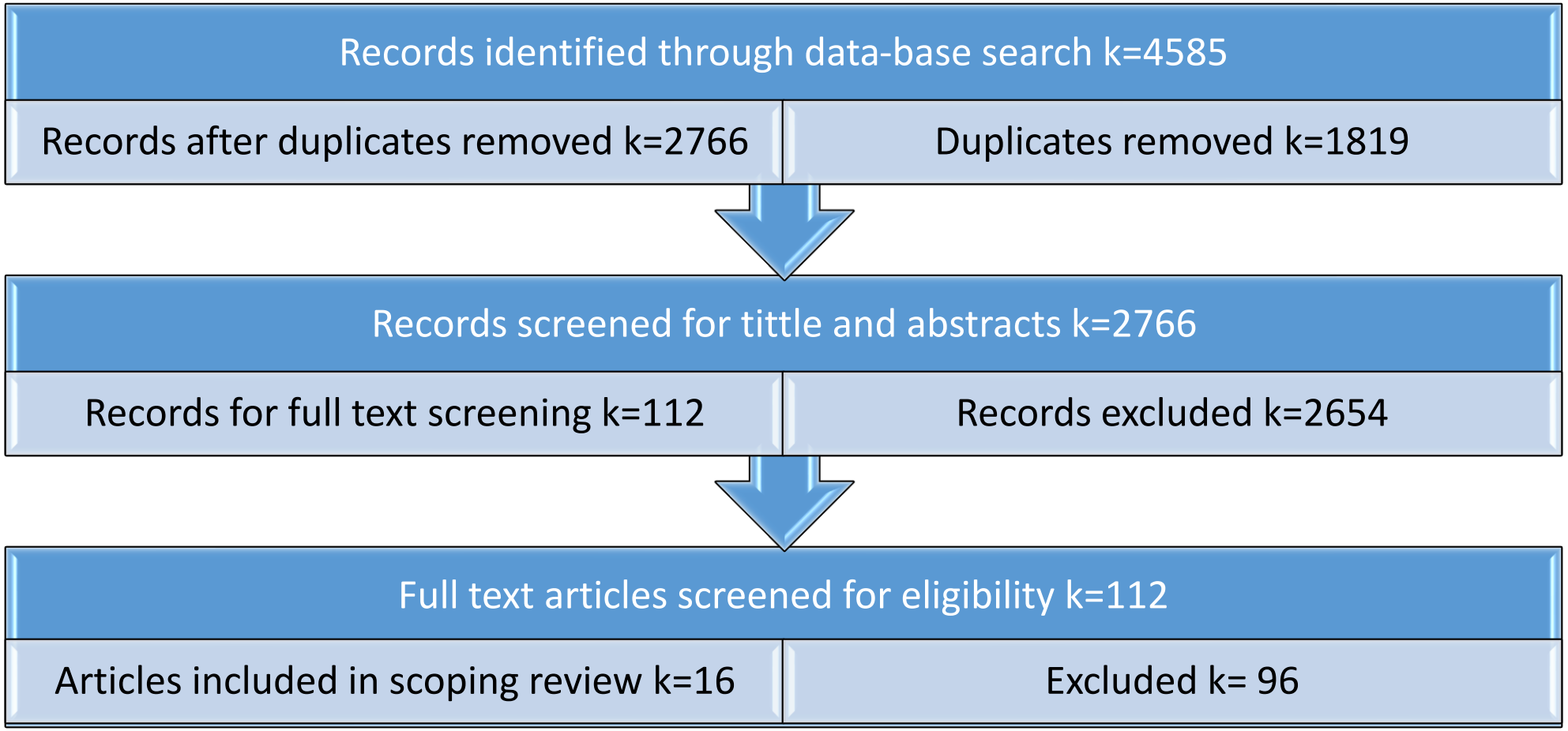
Data items

- Study characteristics (citation, design, country of data collection);
- Digital intervention (type, engagement strategy);
- Evaluation of engagement strategy (method and result specifying if the strategy was effective);
- Features of engagement (usability measures and subjective measures).

Data synthesis

- Data was narratively synthesized .

Results


Records identified through data-base search k=4585
Records after duplicates removed k=2766
Duplicates removed k=1819
Records screened for tittle and abstracts k=2766
Records for full text screening k=112
Records excluded k=2654
Full text articles screened for eligibility k=112
Articles included in scoping review k=16
Excluded k= 96

Study Characteristics

Study Design	Location	Type of digital intervention
• Randomized control trials k=6 • Process data studies k=5 • Observational Studies k=3 • Qualitative studies k=2	• Europe k=6 • North America k=6 • Australia k=5	• Web-based k=8 • Mobile app k=4 • Both k=4

Engagement strategies identified and design features to implement them

Personalization

- Personalized feed back on content/ user's mental health status
- Personalization of content

E- coaching

- Content focused e-coaching
- Adherence focused e-coaching

Reminders

- Personalized reminder text message/ email
- Passive reminder text message email
- Push notifications

Social support

- Social Forum
- Allowing interactivity with peers

Gamification

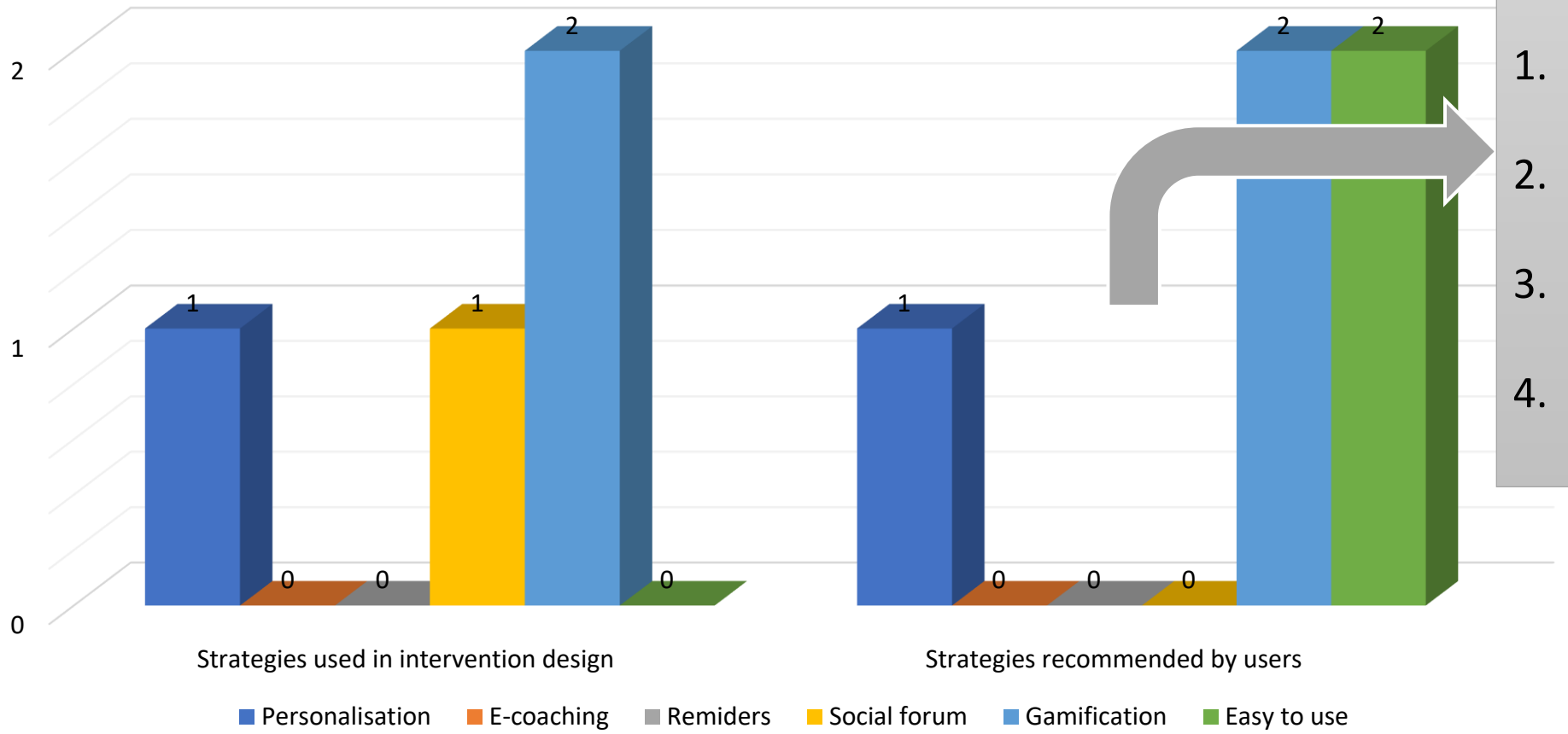
- Content gamification
- Goal setting
- Reward for complete goal
- Daily new content

Flexibility and easy to use

- Bright and neat graphic
- Flexibility in content use
- Substitute for offline help
- Accessibility anytime

Qualitative studies k=2

- Qualitative studies k=2 (36 participants)



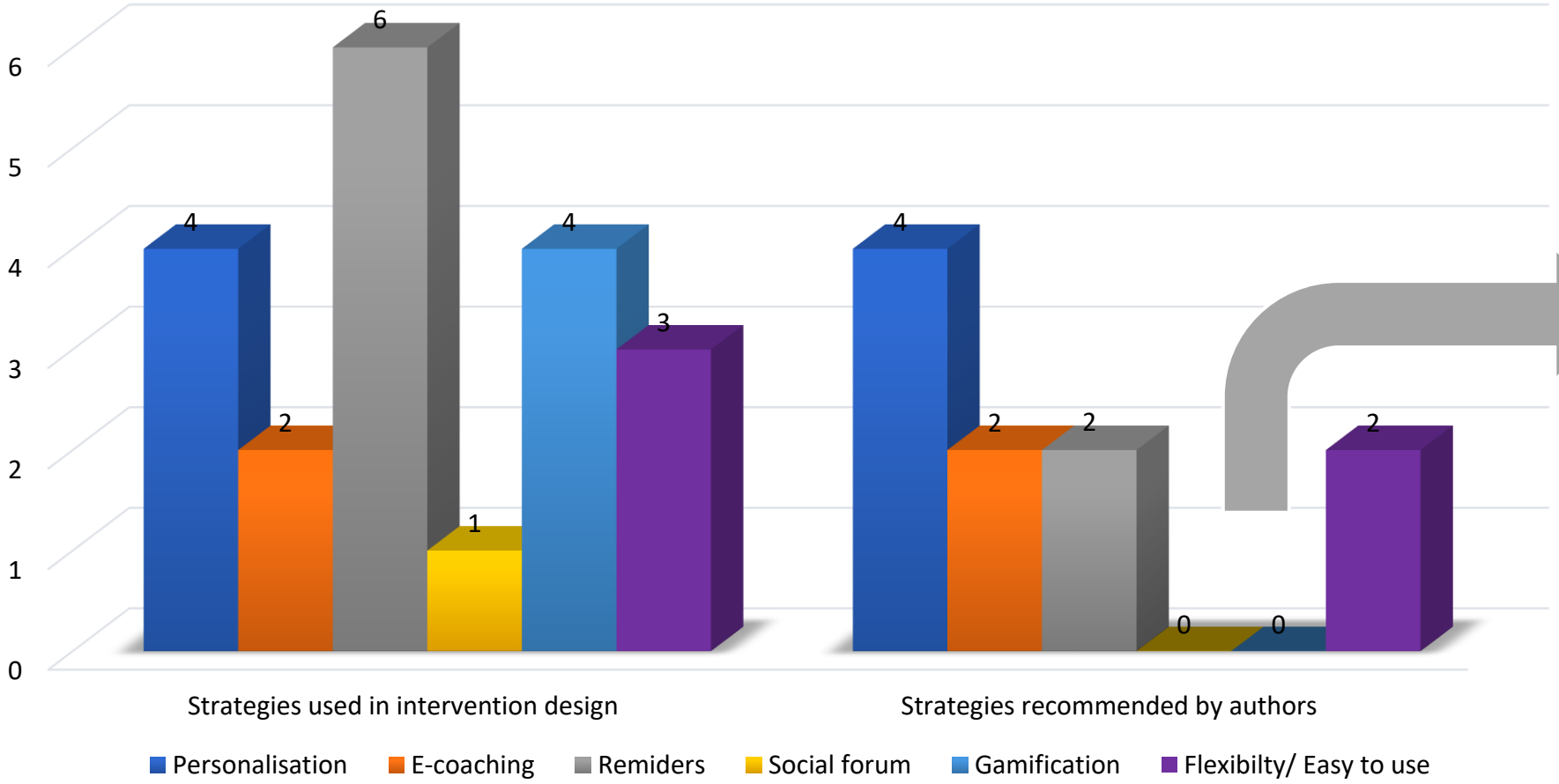
Design features

1. Personalization of content K=1
2. Provision of daily new content k=2
3. Flexibility of content k=1
4. A substitute for offline help k=1

Observational and Process data studies k=8

Results

- Observational studies k=3 (total of 592 participants)
- Process data studies k=5 (total of 7000 participants)



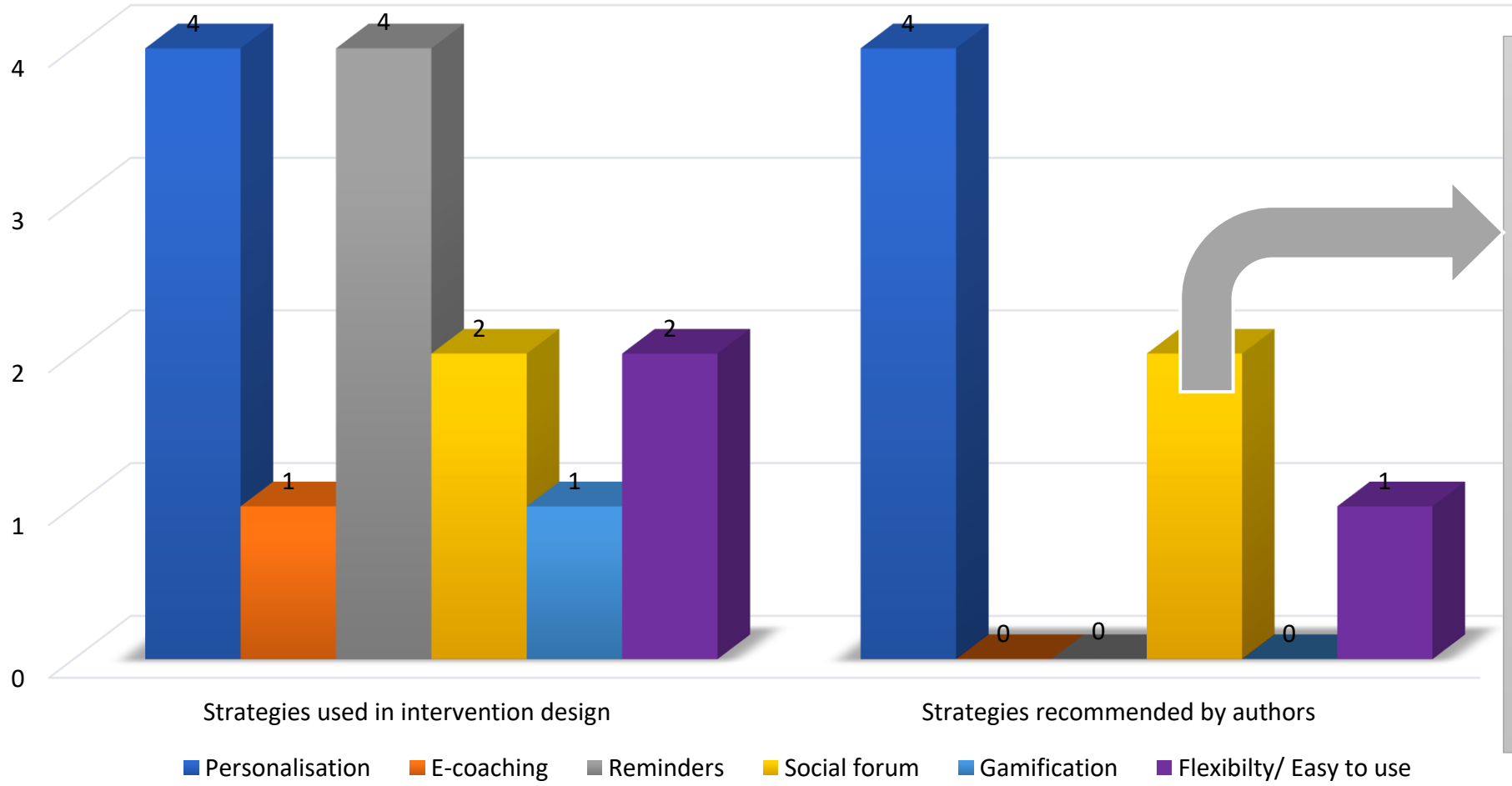
Design features

1. Personalized feed back on content/ mental health status k=4
2. Content and adherence focused guidance k=2
3. Personalized reminders text message/ email k=2

Randomized trials

Results

- Experimental studies k=6 (15 arms)

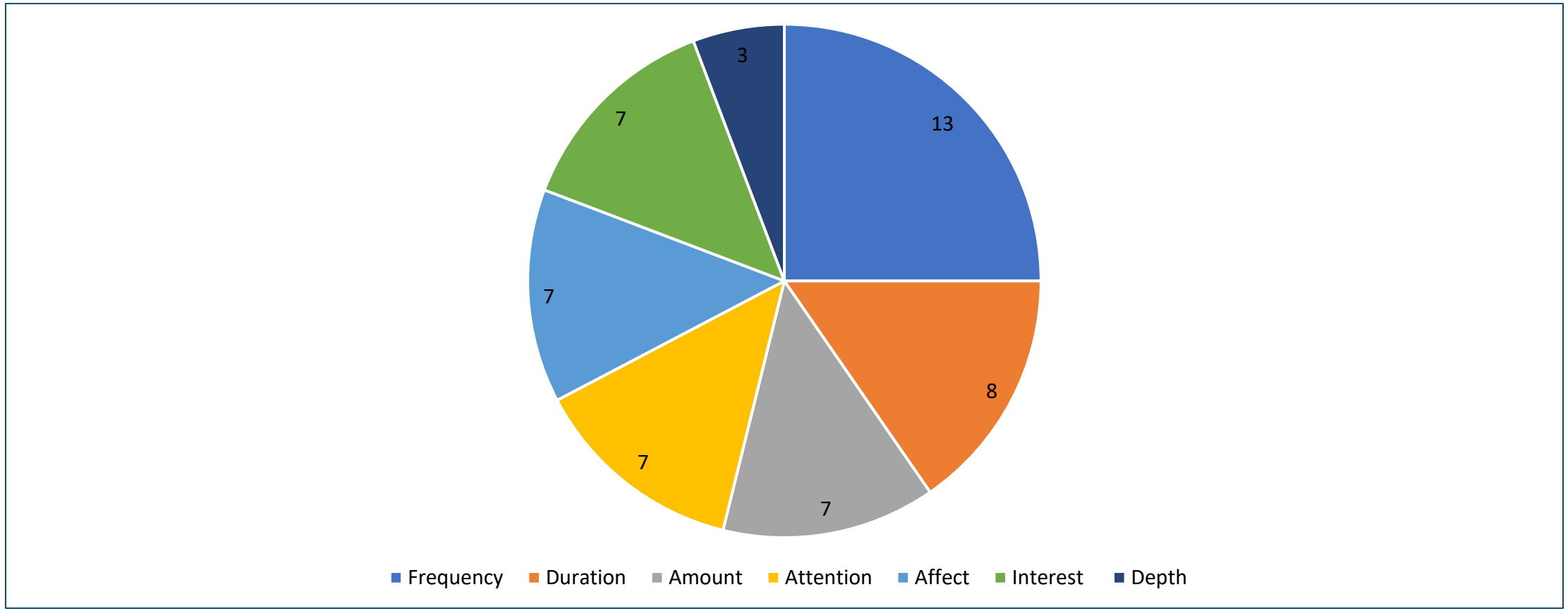


Design features

1. Personalized feed back on content/ mental health status k=2
2. Content personalization k=2
3. Social forum k=1
4. Interactivity with peers k=1
5. Accessibility anytime k=1

Features of engagement measured.

Results



Discussion

Engagement strategies

- Personalized support during the intervention, access to social support and personalized feedback may work best to promote engagement.
- Sole two out of sixteen studies evaluated engagement strategies systematically
- Engagement was explored heterogeneously

Engagement features

- Engagement was not explored in depth
- Objective feature of technology usage > subjective features of user experience

Recommendation for future design and research

- Harmonization of research and evaluation methodology for exploring engagment
- All features of engagement should be explored
- Various engagement strategies and their combinations should be evaluated systematically

Thank you!

Co-authors: Lisa Kühne, Karina Karolina De Santis, Tilman Brand & Heide Busse

Contact

Maham Saleem
Leibniz Institute for Prevention Research and Epidemiology – BIPS
Achterstraße 30
28359 Bremen
saleem@leibniz-bips.de

Leibniz ScienceCampus Digital Public Health Bremen

Leibniz ScienceCampus Digital Public Health partners

Leibniz-Institut für Präventionsforschung und Epidemiologie – BIPS

Universität Bremen

Fraunhofer MEVIS

Supported by Leibniz Gemeinschaft

Freie Hansestadt Bremen

www.lsc-digital-public-health.de

References:

- GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. (2018). Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. The Lancet. DOI:https://doi.org/10.1016/S0140-6736(18)32279-7
- Wang, Y., Shi, L., Que, J. *et al.* The impact of quarantine on mental health status among general population in China during the COVID-19 pandemic. *Mol Psychiatry* (2021). https://doi.org/10.1038/s41380-021-01019-y
- Rudd BN, Beidas RS. Digital mental health: The answer to the global mental health crisis? JMIR Ment Heal 2020 Jun;7(6):e18472. PMID:32484445
- Patel S, Akhtar A, Malins S, Wright N, Rowley E, Young E, Sampson S, Morriss R. The acceptability and usability of digital health interventions for adults with depression, anxiety, and somatoform disorders: Qualitative systematic review and meta-synthesis. J Med Internet Res. 2020. PMID:32628116
- Perski O, Blandford A, West R, Michie S. Conceptualising engagement with digital behaviour change interventions: a systematic review using principles from critical interpretive synthesis. Transl Behav Med 2017 Jun;7(2):254–267. PMID:27966189