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e-INEBRIA special interest group roadmap to best practices for practice and research on brief digital interventions for problematic alcohol and illicit drug use

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Abstract

Background: There is huge potential for scaling up the delivery of brief interventions for alcohol and illicit drug use, given the increasing coverage and technologies of e-digital interventions, including applications for smartphones and tablets. However, while the quantity of digital interventions is increasing rapidly, the involvement of brief-intervention researchers and the development of good practices has just begun.
Roadmap:
In 2018, the Special Interest Group on digital interventions from the International Network on Brief Interventions for Alcohol & Other Drugs (e-INEBRIA SIG) initiated a conversation on possible avenues of future research, which subsequently turned into a roadmap for digital interventions during further discussions. This roadmap consists of points considered relevant for future research, ongoing technological developments, and their implementation across a continuum of prevention and care. Moreover, it outlines starting points for the diversification of brief digital interventions, as well as next steps for quality improvement and implementation in public health and clinical practice.

Conclusions: The roadmap of the e-INEBRIA SIG on digital interventions is a starting point that indicates relevant next steps and provides orientation for researchers and interested practitioners in the ambiguous literature and complexity of current digital interventions.

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e-INEBRIA special interest group roadmap to best practices for practice and research on brief digital interventions for problematic alcohol and illicit drug use

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Abstract

Background

There is huge potential for scaling up the delivery of brief interventions for alcohol and illicit drug use, given the increasing coverage and technologies of e-digital interventions, including applications for smartphones and tablets. However, while the quantity of digital interventions is increasing rapidly, the involvement of brief-intervention researchers and the development of good practices has just begun.

Roadmap

In 2018, the Special Interest Group on digital interventions from the International Network on Brief Interventions for Alcohol & Other Drugs (e-INEBRIA SIG) initiated a conversation on possible avenues of future research, which subsequently turned into a roadmap for digital interventions during further discussions. This roadmap consists of points considered relevant for future research, ongoing technological developments, and their implementation across a continuum of prevention and care. Moreover, it outlines starting points for the diversification of brief digital interventions, as well as next steps for quality improvement and implementation in public health and clinical practice.

Conclusions

The roadmap of the e-INEBRIA SIG on digital interventions is a starting point that indicates relevant next steps and provides orientation for researchers and interested practitioners in the ambiguous literature and complexity of current digital interventions.

Keywords

Brief interventions, mobile applications, good practice, implementation research, quality assurance

1. Background

The Special Group on digital interventions from the *International Network on Brief Interventions for Alcohol & Other Drugs (e-INEBRIA SIG)* was launched at the INEBRIA conference in Lausanne (2016), and took part in INEBRIA conferences in 2017 (New York) and 2018 (Santiago de Chile). During the conference in Santiago de Chile, the *e-INEBRIA SIG* discussed possible avenues for further research that subsequently, in continued meetings, turned into a roadmap, as presented in this commentary. In particular, the *e-INEBRIA SIG* generally is interested in the potential of e-health technologies for brief interventions in health and other settings to reduce the harms produced by alcohol, drug use and gambling.

There is a huge potential for scaling up the delivery of brief interventions, given the increasing coverage in high as well as in middle and low income countries worldwide of smartphones, wearables and other connected devices, and the rise of new technologies like geo-tagging and chatbots. Knowing which technologies can be successfully applied in target groups of alcohol and drug users, and which components of interventions are essential to reduce harm could help to enhance their impact at a public health level.

One strategy to foster evidence-based developments is to keep track of ongoing scientific developments, including periodic reviews and meta-analyses on the effectiveness and implementation of internet interventions for alcohol and other substances. Recent meta-analyses have demonstrated the effectiveness of internet interventions at reducing alcohol use in alcohol misusers (Riper et al. 2018), reducing cannabis use in cannabis misusers at least in the short-term (Boumparis et al. 2019), and reducing drug use among opioid and mixed-drug users (Boumparis et al. 2017). Moreover, first individual patient data (IPD) meta-analyses could, due to their large pooled samples, help to identify initial trends in subgroups (e.g., Riper et al. 2018).

However, there is a problem with most digital interventions developed as part of scientific studies,

since they often lack funding for their maintenance after study completion. A recent review on such interventions in the alcohol field identified 72 trials assessing alcohol interventions, among which only eight (11%) remained accessible, mostly internet-based interventions (Rogers et al. 2017).

While numerous digital interventions are available, aiming to reduce substance use, most lack evidence-based brief intervention content, have never been evaluated for effectiveness, and have been developed without academic or specialist input, including some that are profit-oriented (Schaub et al. 2018, Tofighi et al. 2019). In the specific case of cannabis misuse, the situation is even worse. The few genuine apps aimed at cannabis use and/or harm reduction are forced to compete with hundreds of currently-available apps that promote cannabis use (Ramos et al. 2015). Some attempts have been made to develop evidence-based health app quality rating scales, and one has been developed for researchers (Stoyanov et al. 2015), with a version also for end-users (Stoyanov et al. 2016); it is questionable, however, if alcohol and drug users make use of the latter. Thus, it makes considerable sense to foster research on genuine harm-reduction-oriented digital interventions, particularly apps, to foster evidence-based quality development and its use.

While it makes sense to develop generalizable digital interventions to achieve effects that reduce harms from alcohol and drug use at a general population level, there is evidence from other mental health areas that tailored digital interventions for specific cultures or migrants (Harper Shehadeh et al. 2016) can also increase the effectiveness of digital interventions. So far, there are few systematic reviews of tailored digital interventions for specific alcohol- or drug-using groups and classical diversification topics; e.g., for different age populations, like the elderly; different genders and educational levels; and different cultures. Even the development of such digital interventions in the addiction field is still in its infancy, relative to those that exist for face-to-face interventions.

2. Roadmap for brief digital interventions

2.1 Aims

The aim of the roadmap is to propose further steps and provide orientation for researchers and interested practitioners in the ambiguous literature and complexity of current brief digital interventions for the coordinated, systematic development of a knowledge base to facilitate the effective development and application of digital interventions.

2.2 Methods

Members of the e-INEBRIA SIG represent six European countries, have developed and evaluated digital interventions for alcohol and other drugs, and regularly exchange and plan further research at the INEBRIA annual conference. We developed a preliminary roadmap during the last INEBRIA pre-conference workshop in 2018, in Santiago, Chile, and refined it during subsequent bi-monthly telephone conferences and e-mail exchanges. Next, the list was organized into four main topic groups and, once again, commented upon by our group.

2.3 Topics

Evaluation of effective implementation modalities

- Continue evaluation research efforts (start to construct an ongoing collection of overall data sets for individual patient data IPD meta-analyses; begin with meta-analyses for different interventions and target groups)
- Investigate which elements make digital interventions more effective, particularly to identify components that improve adherence, enhance motivation and/or promote sustained behaviour change.
- Investigate how brief digital interventions should be integrated and can enhance different forms of blended or face-to-face treatments for alcohol and drug use disorders (with continuous electronic monitoring or personalized feedback; investigate where the potentials and limitations of motivational interviewing are).
- Investigate the complementarity between anonymous applications in public health context and

clinical setting applications in hazardous/harmful use recognition and identification, behavioural change support and continued harm reduction.

- Investigate public health and clinical applications for specific vulnerable populations (gender, age, cultural issues, personal differences, differences in contexts and settings, etc.).
- Develop a core set of validated outcome measures suitable for use in digital brief intervention research, depending on the targeted substance.

Diversification and cultural sensitivity

- Develop and investigate easy to use and tablet-optimised guided and unguided brief interventions for the elderly, with extended content and adapted measures.
- Foster the development of culturally-generalizable interventions for newly-industrialised countries, in collaboration with the World Health Organization (WHO) and other relevant international organizations.
- Start to adapt brief digital interventions for specific cultures and minorities, to investigate if cultural adaptation makes a difference in an intervention's acceptance and effectiveness.

Accommodation of new technology

- Encourage research on novel technologies for brief internet interventions, like chatbots to allow for more interactivity, geo-tagging functions e.g. to warn against places that are risky for relapses or to network with supporting peers or social workers in the immediate proximity at concert events (Schaub et al. 2018).
- Clarify whether and, if so, how brief digital interventions can profit from gamification and for which target groups.
- Develop and investigate just-in-time adaptive brief digital interventions.
- Make use of big data technologies e.g. as an additional data source for missing data within a classical randomized controlled trial or to derive a natural additional control group in addition to existing groups in a classical randomized controlled trial design, as well as use of big data methodologies to gain better access to risk groups with brief digital interventions at population levels.

- Develop an evidence base on effective implementation strategies, where training and support and financial incentives are the most effective strategies for implementing face-to-face brief interventions.

Intervention quality and safety management

- Develop quality criteria for digital interventions to change alcohol use and illicit drug use and promote harm reduction.
- Develop a directive on collaboration between research and commercial interests, particularly for publicly funded organizations and private collaborations.
- Further develop the already-initiated taxonomy for describing brief digital interventions in a standardized way.
- Develop best practices for professionals working with brief digital interventions.
- Keep abreast of ongoing quality developments, like genuine health app rating websites.

3. Discussion

While this roadmap provides orientation to current developments in the field, it is also considered a starting point. It will need updating and ongoing promotion at future meetings, conferences, and publications. Moreover, we must ensure that the points of our roadmap will be followed by actions. Therefore, we plan to continue our discussions between future INEBRIA conferences, but also during symposia and workshops at these conferences, as well as at related conferences like the conference of the International Society of Internet Interventions (ISRII) and the conferences of the International Society of Behavioral Medicine (ISBM), where alcohol and drug use can be linked to relevant developments in digital interventions (ISRII), epidemiology and interventions for health-related behaviors and chronic conditions (ISBM).

4. Conclusions

The roadmap proposed by the e-INEBRIA SIG on digital interventions is a starting point that indicates relevant next steps. It also provides orientation for researchers and interested practitioners in the ambiguous literature and complexity of current digital interventions. Moreover, it calls for actions to coordinate our efforts towards research and evidence-based implantation dealing with these vast developments.

5. References

1. Riper, H., Hoogendoorn, A., Cuijpers, P., Karyotaki, E., Boumparis, N., Mira, A., Andersson, G., Berman, A.H., Bertholet, N., Bischof, G., Blankers, M., Boon, B., Boß, L., Brendryen, H., Cunningham, J., Ebert, D., Hansen, A., Hester, R., Khadjesari, Z., Kramer, J., Murray, E., Postel, M., Schulz, D., Sinadinovic, K., Suffoletto, B., Sundström, C., de Vries, H., Wallace, P., Wiers, R.W., Smit, J.H. (2018). Effectiveness and treatment moderators of internet interventions for adult problem drinking: An individual patient data meta-analysis of 19 randomised controlled trials. *PLoS Medicine, 15*(12), e1002714. doi: 10.1371/journal.pmed.1002714
2. Boumparis, N., Loheide-Niesmann, L., Blankers, M., Ebert, D.D., Korf, D., Schaub, M.P., Spijkerman, R., Tait, R.J., Riper, H. (2019). Short- and long-term effects of digital prevention and treatment interventions for cannabis use reduction: A systematic review and meta-analysis. *Drug and Alcohol Dependence, 200*, 82-94. doi: 10.1016/j.drugalcdep.2019.03.016
3. Boumparis, N., Karyotaki, E., Schaub, M.P., Cuijpers, P., Riper, H. (2017). Internet interventions for adult illicit substance users: a meta-analysis. *Addiction, 112*(9), 1521-1532. doi: 10.1111/add.13819
4. Rogers, M.A., Lemmen, K., Kramer, R., Mann, J., Chopra, V. (2017). Internet-delivered health interventions that work: Systematic review of meta-analyses and evaluation of website availability. *Journal of Medical Internet Research, 19*(3), e90. doi: 10.2196/jmir.7111
5. Schaub, M.P., Yi-Chen, L.J., Pirona, A. (2018). *m-Health applications for responding to drug use and associated harms.* EMCDDA PAPERS. Brussels: Publications Office of the European Union. ISBN: 978-92-9497-368-9.
6. Tofighi, B., Chemi, C., Ruiz-Valcarcel, J., Hein, P., Hu, L. (2019). Smartphone Apps Targeting Alcohol and Illicit Substance Use: Systematic Search in in Commercial App Stores and Critical Content Analysis. *JMIR Mhealth and Uhealth, 7*(4), e11831. doi: 10.2196/11831

7. Ramo, D.E., Popova, L., Grana, R., Zhao, S., Chavez, K. (2015). Cannabis Mobile Apps: A Content Analysis. *JMIR Mhealth and Uhealth, 3*(3), e81. doi: 10.2196/mhealth.4405
8. Stoyanov, S.R., Hides, L., Kavanagh, D.J., Zelenko, O., Tjondronegoro, D., Mani, M. (2015). Mobile App Rating Scale: A New Tool for Assessing the Quality of Health Mobile Apps. *JMIR Mhealth and Uhealth, 3*(1), e27. doi: 10.2196/mhealth.3422
9. Stoyanov, S.R., Hides, L., Kavanagh, D.J., Wilson H. (2016). Development and Validation of the User Version of the Mobile Application Rating Scale (uMARS). *JMIR Mhealth and Uhealth, 4*(2), e72. doi: 10.2196/mhealth.6419
10. Harper Shehadeh, M., Heim, E., Chowdhary, N., Maercker, A., Albanese, E. (2016). Cultural Adaptation of Minimally Guided Interventions for Common Mental Disorders: A Systematic Review and Meta-Analysis. *JMIR Mental Health, 3*(3), e44. doi: 10.2196/mental.5776

List of abbreviations

e-INEBRIA SIG: Special Group on digital interventions from the *International Network on Brief Interventions for Alcohol & Other Drugs (INEBRIA)*

IPD: Individual patient data (meta-analysis)

Declarations

Ethics approval and consent to participate

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Consent for publication

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Authors' contributions

MPS and HR had the initial idea behind this roadmap; MPS prepared the first draft of the

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Supplementary Files