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Tailored health communication: Opportunities and challenges in the digital era

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Tailoring health communication has proven to be an effective and cost-effective method for promoting health behavior change. This is illustrated by systematic reviews and meta-analyses[1,2] as well as an abundance of individual research efforts.[3–6] 'Tailoring' refers to the process of creating individualized communications, and typically starts with a theory-driven assessment of characteristics that are unique to an individual and are related to the outcome of interest.[7] In contrast to generic forms of health communication (e.g., health brochures or information websites), tailored communications provide individuals with information that is relevant for them and that fits with their particular situation. As a result, this information is more likely to be considered as personally relevant and, consequently, to be read – findings which are in accordance with principles derived from the elaboration likelihood model.[8] Increased perceived personal relevance is, in turn, expected to lead to increased user engagement, more in-depth processing of information, greater recall and, consequently greater intentions to engage in the desired health behaviour change.[8–11] 'Computer-tailoring' refers to this process being automated, with the individual assessment being matched with relevant pieces of information using software algorithms.[12]

Early tailored interventions typically relied on print materials, e.g., paper-and-pencil questionnaires and printed tailored feedback letters, but advancements in computing soon provided health communication scholars and practitioners with more ways to offer tailored health communication.[13] Web and mobile technologies have made it possible to scale up the production and delivery of tailored interventions and have helped improve the reach of effective behavior change interventions to potentially hard-to-reach populations. However, despite the many advantages afforded by tailored interventions (e.g., 24-7 accessibility, multiformat delivery modes, anonymity), high rates of attrition pose one of the main challenges to intervention effectiveness.[14] Moreover, possibly in part caused by high attrition rates, the effect sizes of tailored interventions – albeit positive – remain rather small.[1] It therefore seems that current tailoring efforts do not reach their full potential, which calls for identifying novel strategies that may increase the effectiveness and usage of tailored interventions.[15]

In this special issue, opportunities and challenges of tailored health communication are discussed. In the context of weight-loss e-health interventions, Ryan et al.[16] acknowledged the problem of small effect sizes in tailored interventions. In their systematic review, four out of six studies showed small, but beneficial effects of tailored interventions on weight loss. In their systematic review and meta-analysis, Sahin et al.[17] found that tailored text messaging interventions for type II diabetes self-management substantially contributed to effective glycemic control. The effectiveness of tailored text messaging depended on several intervention characteristics, such as message frequency, message delivery, and choice of modality. Both reviews acknowledged the heterogeneity in tailoring approaches and recognize the opportunities for tailoring health information that come with advances in technologies.

A number of studies have also explored new ways of tailoring that go beyond 'content-tailoring.' Content tailoring involves automatically adjusting intervention content to an individual's present health behaviour and/or self-reported scores on known predictors of the desired health behaviour (change).[18] This method,

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however, largely ignores individual differences in the preferences for *how* health-related information is presented. Altendorf et al.[19] investigated the impact of differently framed messages, i.e., manipulating how information is presented, and whether different message frames influence participants with a higher or lower need for autonomy differently. However, the hypothesized moderation effect of this individual need – which would suggest possibilities for message frame tailoring – was not found. Bol et al.[20] examined the effects of tailoring via customization, which is a user-centered approach (i.e., customized *by* us) as compared to a system-driven approach (i.e., personalized *for* us), which is the traditional way tailored interventions are created. They found that while customization in mobile health apps did not enhance perceived active control and autonomous motivation, it did increase physical activity for those with a higher need for autonomy.

More opportunities for improvement result from the technological advancements our society is experiencing. Within this rapidly changing context, Lutkenhaus et al.[21] and Cheung et al.[22] suggest the need to move towards alternative approaches to tailoring. By leveraging the potential of influencer marketing, Lutkenhaus et al.[21] combined network analysis and text mining techniques to identify online communities and map their health-related and cultural beliefs, and to identify appropriate social influencers as channels to more effectively convey tailored health-related messages to these online communities. In their scoping review, Cheung et al.[22] discussed another alternative approach to optimize tailored health interventions, i.e., by linking them to recommender systems. Recommender systems can help select messages that are most relevant to users, either based on their past choices or by having the user express their preferences through a rating system. Both recommender systems and social influencers can expand and nuance the impact of tailored health communication by introducing new ways to tailor content.

While it is important to continue exploring and testing new tailoring strategies, it is also critical to continue building on the science of tailoring and examining the processes and mechanisms that can influence the effectiveness of tailored health communication.[16,23] As the primary goal of tailoring is to deliver individualized communications, user-centered approaches are critical when developing tailored health communication. Using a Research through Design approach, Groeneveld et al.[24] refined a framework and guidelines for tailoring digital health communication. They describe a stepwise approach of involving the end-user in the development of tailored interventions, by identifying patient subgroups and proposing prototypes that match the needs of these subgroups. Similarly, Kerkhof et al.[25] described the participatory design of a digital tool for people with mild dementia. They also proposed that collaboration among important stakeholders, such as patients, informal caregivers and designers, is critical to ensuring that the digital health tools being developed address their needs, wishes and abilities.

To conclude, this special issue presents an exciting bundle of articles that represent the recent developments in tailored interventions. We welcome your reads and hope to inspire many of you to further contribute to our understanding of the challenges and opportunities of tailored health communication in the digital era.

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