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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<sup>1,2</sup> as well as an abundance of individual research efforts.<sup>3-6</sup> ‘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.<sup>7</sup> 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.<sup>8</sup> 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.<sup>8-11</sup> ‘Computer-tailoring’ refers to this process being automated, with the individual assessment being matched with relevant pieces of information using software algorithms.<sup>12</sup>

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.<sup>13</sup> 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, multi-format delivery modes, anonymity), high rates of attrition pose one of the main challenges to intervention effectiveness.<sup>14</sup> Moreover, possibly in part caused by high attrition rates, the effect sizes of tailored

interventions – albeit positive – remain rather small.<sup>1</sup> 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.<sup>15</sup>

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.<sup>16</sup> 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.<sup>17</sup> 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).<sup>18</sup> This method,

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however, largely ignores individual differences in the preferences for *how* health-related information is presented. Altendorf et al.<sup>19</sup> 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.<sup>20</sup> 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.<sup>21</sup> and Cheung et al.<sup>22</sup> suggest the need to move towards alternative approaches to tailoring. By leveraging the potential of influencer marketing, Lutkenhaus et al.<sup>21</sup> 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.<sup>22</sup> 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.<sup>16,23</sup> 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.<sup>24</sup> 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.<sup>25</sup> 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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## References

1. Lustria MLA, Noar SM, Cortese J, et al. A meta-analysis of web-delivered tailored health behavior change interventions. *J Health Commun* 2013; 18: 1039–1069.
2. Cheung KL, Wijnen B and De Vries H. A review of the theoretical basis, effects, and cost effectiveness of online smoking cessation interventions in The Netherlands: a mixed-methods approach. *J Med Internet Res* 2017; 19: e230–e214.
3. Stanczyk NE, Smit ES, Schulz DN, et al. An economic evaluation of a video- and text-based computer-tailored intervention for smoking cessation: a cost-effectiveness and cost-utility analysis of a randomized controlled trial. *PLoS One* 2014; 9: e110117.
4. Smit ES, Evers SMAA, De Vries H, et al. Cost-effectiveness and cost-utility of internet-based computer tailoring for smoking cessation. *J Med Internet Res* 2013; 15: e57.
5. Poel Te F, Bolman C, Reubsat A, et al. Efficacy of a single computer-tailored e-mail for smoking cessation: results after 6 months. *Health Educ Res* 2009; 24: 930–940.
6. Smit ES, De Vries H and Hoving C. Effectiveness of a web-based multiple computer tailored smoking cessation program: a randomized controlled trial among Dutch adult smokers. *J Med Internet Res* 2012; 14: e82.

7. Kreuter MW, Strecher VJ and Glassman B. One size does not fit all: the case for tailoring print materials. *Ann Behav Med* 1999; 21: 276–283.
  8. Cacioppo JT and Petty RE. The elaboration likelihood model of persuasion. *Adv Consum Res* 1984; 11: 673–675.
  9. Kreuter M, Farrell D, Olevitch L, et al. *Tailoring health messages: customizing communication with computer technology*. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.
  10. Ritterband LM, Thorndike FP, Cox DJ, et al. A behavior change model for internet interventions. *Ann Behav Med* 2009; 38: 18–27.
  11. Nikoloudakis IA, Crutzen R, Rebar AL, et al. Can you elaborate on that? Addressing participants' need for cognition in computer-tailored health behavior interventions. *Health Psychol Rev* 2018; 12: 437–452.
  12. De Vries H and Brug J. Computer-tailored interventions motivating people to adopt health promoting behaviours: introduction to a new approach. *Patient Educ Couns* 1999; 36: 99–105.
  13. Krebs P, Prochaska JO and Rossi JS. A meta-analysis of computer-tailored interventions for health behavior change. *Prev Med* 2010; 51: 214–221.
  14. Eysenbach G. The law of attrition. *J Med Internet Res* 2005; 7: e11.
  15. Smit ES, Linn AJ and Van Weert J. Taking online computer-tailoring forward: the potential of tailoring the message frame and delivery mode of online health behaviour change interventions. *Eur Health Psychol* 2015; 17: 25–31.
  16. Ryan K, Dockray S and Linehan C. A systematic review of tailored eHealth interventions for weight loss. *Digit Health* 2019; 5. doi: 10.1177/2055207619826685.
  17. Sahin C, Courtney KL, Naylor PJ, et al. Tailored mobile text messaging interventions targeting type 2 diabetes self-management: a systematic review and a meta-analysis. *Digit Health* 2019; 5. doi: 10.1177/2055207619845279.
  18. Rimer BK and Kreuter MW. Advancing tailored health communication: a persuasion and message effects perspective. *J Comm* 2006; 56: S184–S201.
  19. Altendorf MB, Van Weert JCM, Hoving C, et al. Should or could? Testing the use of autonomy-supportive language and the provision of choice in online computer-tailored alcohol reduction communication. *Digit Health* 2019; 5. doi: 10.1177/2055207619832767.
  20. Bol N, Høie NM, Nguyen MH, et al. Customization in mobile health apps: explaining effects on physical activity intentions by the need for autonomy. *Digit Health* 2019; 5. doi: 10.1177/2055207619888074.
  21. Lutkenhaus RO, Jansz J and Bouman MP. Tailoring in the digital era: Stimulating dialogues on health topics in collaboration with social media influencers. *Digit Health* 2019; 5. doi: 10.1177/2055207618821521.
  22. Cheung KL, Durusu D, Sui X, et al. How recommender systems could support and enhance computer-tailored digital health programs: a scoping review. *Digit Health* 2019; 5. doi: 10.1177/2055207618824727.
  23. Harrington NG and Noar SM. Reporting standards for studies of tailored interventions. *Health Educ Res* 2012; 27: 331–342.
  24. Groeneveld B, Melles M, Vehmeijer S, et al. Developing digital applications for tailored communication in orthopaedics using a research through design approach. *Digit Health* 2019; 5. doi: 10.1177/2055207618824919.
  25. Kerkhof Y, Pelgrum-Keurhorst M, Mangiaracina F, et al. User-participatory development of FindMyApps; a tool to help people with mild dementia find supportive apps for self-management and meaningful activities. *Digit Health* 2019; 5. doi: 10.1177/2055207618822942.
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