

The Role of Tailoring in E-Health and ICT-Based Interventions in Different Contexts and Populations

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INTRODUCTION

Developments in information and communication technologies (ICT's) have fostered the establishment of a new field at the intersection of healthcare practice, public health and business. This domain, supported by electronic processes, has been designated as electronic health or “e-health” (Eysenbach, 2001). In e-health, communication and information technologies may be used for healthcare provision and treatment, but also for health promotion and education, by delivering interventions to help individuals adopt healthier lifestyles and assisting them in their behavioural change processes. Amongst the advantages of the use of e-health interventions is the possibility they entail of providing individualized or “tailored” contents and formats, while having a potential high reach.

Tailoring is a strategy which sets out to increase the effectiveness of interventions by adapting them so that their contents, format, selected channel and/or message source is matched to the psychological, behavioural and demographic characteristics of individuals (Noar, Harrington, & Aldrich, 2009). Tailoring has been defined as “any combination of strategies and information intended to reach one specific person, based on the characteristics of that specific person, related to the outcome of interest, and derived from an individual assessment” (Kreuter, Strecher, & Glassman, 1999, p. 227). Tailoring offers a combination of high reach that was only previously possible through the use of undifferentiated mass health education interventions with personalization elements that are at the core of the clinical approach (Velicer, Prochaska, & Redding, 2006). Moreover, it has been shown to lead to greater efficacy in changing peoples' knowledge, attitudes, self-efficacy beliefs and health-related behaviours (Krebs, Prochaska, & Rossi, 2010; Lustria et al., 2013; Noar, Benac, & Harris, 2007; Portnoy, Schott-Sheldon, Johnson, & Carey, 2008).

Some authors have distinguished tailoring from a similar method, targeting, which is based on the identification of similarities in a group or sub-group of individuals and adapting communication to meet those characteristics (Noar et al., 2009). Others have situated tailoring and targeting in a continuum of message individualization (Hawkins, Kreuter, Resnicow, Fishbein, & Dijkstra, 2008; Kreuter, Farrell, Olevitch, & Brennan, 2000). This continuum varies from mass communication, directed at large audi-

ences, where virtually no audience segmentation or message customization are performed, to targeted communications where some degree of segmentation and customization is present according to the needs and preferences of a sub-group, to highly individualized, tailored health messages.

BACKGROUND: TAILORING IN E-HEALTH AND ICT INTERVENTIONS

In our global society, ICT's enable the provision of tailored information to a vast number of people in vital areas, including the health domain (Bacigalupe, 2011). Among US adults, 81% use the Internet, and among these users, 72% report having searched for health information online over the past year (Fox & Duggan, 2013). In Europe, several countries, namely, Denmark, Germany, Greece and Portugal, have shown a steady increase in the use of the Internet as a source for health information (Kummervold & Wynn, 2012). Moreover, the use of ICTs is not limited to Western societies. According to the International Telecommunication Union, mobile-cellular penetration rates stand at 96% globally, 121% in developed countries, 90% in developing countries, 89% in Asia and the Pacific, and 69% in Africa (ITC, 2014). The latter are the regions with the strongest mobile-cellular growth, despite lower penetration rates. Global penetration of mobile phones reveals higher access to them than to water and sanitation services worldwide.

The use of ICT's in health has also increased exponentially, bringing new possibilities and tools for healthcare professionals. Tailored health education programs are a good example, and can be used for health promoting activities, disease prevention, treatment, rehabilitation and chronic disease management (Kreps & Neuhauser, 2010). Many technologies (e.g., mobile smart-phones) are now used on a daily basis, so they can contribute in many health areas, from the management of chronic diseases to the promotion of healthy lifestyles (Qiang, Yamamichi, Hausman, Miller, & Altman, 2012). Additionally, these technologies may play an important role in decreasing the healthcare access gap among, for example, people in distant rural communities, hence contributing towards an increase in well-being and quality of life in such communities (Ruxwana, Herselman, & Conradie, 2010).

The biggest challenge for ICT and e-health is referred to by Ndiaye (2014), quoting InfoDev, 2007, p. 13: "ICT's are not simply neutral conduits of technical information, but require skilled and sensitive communicators to facilitate interactions". It's time to abandon the "one-size-fits-all" strategies and improve communication in a way that it fits the needs and characteristics of individuals, making use of feedback strategies and helping people in their urgent needs. In fact, research has shown that tailored interventions have increased odds of being read and remembered (Skinner, Strecher, & Hospers, 1994), being perceived as more relevant (Kreuter & Wray, 2003), interesting and engaging (Kreuter, Bull, Clark, & Oswald, 1999) and of being discussed with others (Brug, Steenhuis, van Assema, & de Vries, 1996). Furthermore, tailored interventions have also proved to be more effective in promoting changes in behaviours that have an impact on health, such as dietary behaviours, physical activity, smoking cessation and mammography screening (Krebs et al., 2010; Lustria et al., 2013; Noaret et al., 2007; Portnoy et al., 2008).

Advances in computer technology in the 90's were the first to make the development of individually tailored interventions possible (Harrington & Noar, 2012), but this first generation of computer-tailored interventions consisted mostly of print materials, which had several disadvantages such as a lack of interactivity, delayed feedback provision and cost (Brug, Oenema, & Campbell, 2003). The whole new world of ICT and e-health interventions thus encapsulates the potential to contribute towards the development and improvement of the second generation of tailored health communications that has progressively

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