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Jacob Oche Attah
Health Promotion / Digital
Health, University of Suffolk,
Nigeria.

Critical Review of an Automated Physical Activity Intervention Delivered via Internet and Mobile Technology: A review of Hurling et al. (2007)

Jacob Oche Attah

Abstract

Digital health technologies have emerged as promising tools for promoting physical activity and addressing obesity. This paper critically reviews the intervention by Hurling et al. (2007), which employed internet and mobile phone technology to deliver an automated physical activity program grounded in the Theory of Planned Behavior. The intervention demonstrated short-term improvements in physical activity through tailored feedback, barrier identification, and peer interaction. However, limitations related to intervention duration, use of incentives and restricted population scope constrain long-term applicability. The review highlights the need for stronger theoretical integration and more robust evaluation to support sustained behavior change.

Keywords: Health promotion, Digital health interventions, Theory of Planned Behavior

Introduction

Health promotion enables individuals to gain greater control over determinants of health and improve health outcomes. Physical inactivity is a key contributor to obesity and related non-communicable diseases, including cardiovascular disease and type 2 diabetes mellitus. Given the global increase in overweight and obesity prevalence among adults and children alike, interventions that promote sustained physical activity are essential. Digital health technologies present opportunities for scalable and cost-effective behavior change interventions. This paper critically reviews the physical activity intervention developed by Hurling et al. (2007). The author conducted a randomized controlled trial involving 77 adult participants allocated to either an intervention or control group. Participants in the intervention group received a seven-week automated program delivered via the internet and mobile phones, which included tailored feedback, identification of perceived barriers with suggested solutions, exercise planning with reminders, and peer interaction through a message board. The control group received no feedback or behavioral support.

Theoretical Basis and Strengths

The intervention was grounded in the Theory of Planned Behavior (TPB), which posits that behavior is influenced by intention, shaped by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). A key strength of the intervention was its emphasis on perceived behavioral control, achieved through personalized identification of barriers and tailored strategies to overcome them. Addressing perceived barriers has been shown to significantly enhance behavior change outcomes (Lin et al., 2017). The use of objective physical activity measures further strengthened the study's internal validity.

Limitations

The use of financial incentives may have influenced participant behavior, potentially limiting generalizability. The short duration of the intervention (seven to nine weeks) restricts conclusions about long-term behavior maintenance. Third, the evaluation relied almost exclusively on quantitative data, limiting insight into participant experiences and contextual

Correspondence:
Jacob Oche Attah
Health Promotion / Digital
Health, University of Suffolk,
Nigeria.

factors; qualitative methods are critical for understanding mechanisms of change. Additionally, the intervention targeted primarily middle-aged adults, excluding children and adolescents, populations also highly affected by physical inactivity and obesity.

Implications for Health Promotion Practice

Future digital health interventions should more comprehensively operationalize behavioral theory, diversify target populations, and incorporate longer evaluation periods to assess sustained impact. Integrating qualitative methods could enhance understanding of user engagement and support iterative intervention refinement (Darlington et al., 2020).

Conclusion

Hurling et al. (2007) provide early evidence supporting the potential of automated, internet- and mobile-based interventions to promote physical activity. The study effectively applied elements of the Theory of Planned Behavior, particularly perceived behavioral control and subjective norms. However, limitations in duration, evaluation depth, and population scope highlight the need for further refinement. Strengthening theoretical integration and evaluation design would enhance the effectiveness and sustainability of similar health promotion interventions.

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