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Ferguson, Melanie A. and Coulson, Neil S. and Henshaw, Helen and Heffernan, Eithne (2016) Application of health behaviour theory to hearing healthcare research: The state of play and beyond. *International Journal of Audiology*, 55 (sup3). S1-S2. ISSN 1708-8186

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To cite this article: Melanie A. Ferguson, Neil S. Coulson, Helen Henshaw & Eithne Heffernan (2016) Application of health behaviour theory to hearing healthcare research: The state of play and beyond, *International Journal of Audiology*, 55:sup3, S1-S2, DOI: [10.1080/14992027.2016.1206215](https://doi.org/10.1080/14992027.2016.1206215)

To link to this article: <http://dx.doi.org/10.1080/14992027.2016.1206215>



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Published online: 15 Jul 2016.



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Editorial**Application of health behaviour theory to hearing healthcare research: The state of play and beyond**Melanie A. Ferguson^{1,2}, Neil S. Coulson³, Helen Henshaw^{1,4} & Eithne Heffernan^{1,4}

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Foreword

Over recent years, there has been an increasing use of theories of health and illness behaviour from health psychology that has helped guide hearing healthcare research. In particular, these models have been used to improve our understanding of response to hearing loss as a long-term condition, help-seeking, decision-making and intervention uptake in adults with hearing loss. This supplement brings together a range of theories and models that have been applied across other health disciplines, namely the Transtheoretical Model (TM), the Health Belief Model (HBM), the Self-regulatory Model (SRM), and the Self-determination Model (SDM). Within audiology, the TM and HBM have received the most attention, with an initial focus on help-seeking for hearing loss and hearing aid uptake. This supplement includes not only the TM and HBM but also theories and models that are new in the field of audiology, but which have been widely used with other health conditions: the SRM and SDM. Finally, a newly developed model, the COM-B (capability, opportunity and motivation – behaviour) that incorporates the key components of existing models has been gaining increasing recognition within health psychology and is just starting to gain ground in audiological research.

The inspiration for this supplement in the *International Journal of Audiology* arose during an ‘Audiology meets Health Behaviour Psychology’ workshop that we (hearing and health psychology researchers) held in Nottingham in November 2014, where we invited UK audiologists and health psychologists to join us in discussing different health-related theories and models. Following the workshop, we invited some of our international colleagues who are at the forefront of investigating these theories and models in audiological research, and promoting their use in clinical practice, to contribute to this supplement. As with all papers submitted to the IJA, the submissions to this supplement were subjected to the standard peer-review process by external reviewers before being accepted for publication.

The first two papers use the Self-regulatory and Self-determination Theory models. The first paper (Heffernan, Coulson, Henshaw, Barry & Ferguson) sets the scene with a qualitative study that used Leventhal’s SRM to explore the psychosocial experiences arising from hearing loss through interviews with adults with hearing loss and hearing healthcare professionals. It was found that adults with hearing loss used engaged coping (i.e. directly addressing hearing loss) and disengaged coping, which involved withdrawing from situations (e.g. declining an invitation) and withdrawing within situations (e.g. sitting quietly whilst others speak). Both coping responses were perceived to have advantages and disadvantages, depending on the circumstances. The second paper (Ridgway, Hickson & Lind) reports on a quantitative, longitudinal cohort study that investigated the explanatory power of Deci and Ryan’s SDT model in relation to hearing aid adoption decisions and fitting outcomes. Autonomous motivation was associated with increased hearing aid adoption and hearing aid satisfaction, while autonomy support was associated with increased perceived competence and satisfaction with hearing aids, and reduced activity limitations.

The next four papers are based on Prochaska and DiClemente’s Transtheoretical model, which has probably been the most widely used behaviour change model in audiology to date. The first two papers (Ferguson, Maidment, Russell, Gregory & Nicholson; Ferguson, Woolley & Munro) report on the TM in the context of first-time hearing aid users. The first seeks to assess the feasibility and benefits of the Ida Institute’s Motivational Tools when used in a UK audiology clinic. The audiologists were very positive about the use of the tools in clinic, and the patient group who engaged with the motivational tools reported greater self-efficacy, reduced anxiety and greater engagement with the audiologist than the control group, early in the patient journey. The second paper seeks to understand more about the impact of self-efficacy, readiness to improve hearing, and patient expectations on hearing aid outcomes. Although there was no robust effect of self-efficacy, the study showed greater readiness and expectations predicted improved

hearing aid benefits and satisfaction. Both papers suggested that qualitative methodologies might better tap into the role of the TM to explore psychosocial aspects of hearing loss, and this was the approach taken in the third paper (Ekberg, Grenness & Hickson). Conversation analysis was used to examine video-recorded interactions between adults with hearing loss and their audiologist at the initial appointment. The way patients described their hearing loss during history-taking affected the way in which they responded to the audiologist's recommendations for rehabilitation, particularly hearing aids, later on in the appointment. The final paper (Ingo, Brännström, Andersson, Lunner & Laplante-Lévesque) followed up adults who had failed an online hearing screening test. Using the TM, they examined whether a range of measures of 'stages of change' could predict later help-seeking behaviour and hearing-aid uptake. Their findings indicate that there was good predictive validity of a single-item measure of stage of change.

The Health Belief Model is examined in the next two papers. The first (Saunders, Frederick, Silverman, Nielsen & Laplante-Lévesque) investigated both a stage (i.e. TM) and non-stage (i.e. HBM) model in their study that considered the relationships between attitudes and beliefs relative to hearing-aid uptake and outcomes six months later. Their findings demonstrated the predictive ability of both attitudes and beliefs and suggest strategies which could be used to increase uptake of hearing health care. The second paper (Schulz, Modeste, Lee, Roberts, Saunders & Witsell) introduced the role of communication partners and considered their perceived burden as a result of suspected hearing loss in others. Including this perceived burden as an additional component within the HBM improved the fit of the model to predict those who would seek hearing evaluation.

The final set of papers use a new theoretical approach developed by Michie and colleagues. The first paper (Greenwell, Sereda, Coulson, El Refaie & Hoare) applied two health psychology taxonomies to a systematic review of the techniques and effects of self-help interventions for tinnitus. It was found that the current evidence base for tinnitus self-help interventions is limited, as there is a lack of high-quality, homogeneous randomized controlled trials in this area. The findings of the available studies were mixed as regards the efficacy of tinnitus self-help interventions. The penultimate paper (Barker, Atkins & de Lusignan) introduces the COM-B model, which posits that 'Capability', 'Opportunity' and 'Motivation' are the key drivers of behaviour. They discuss how the COM-B model has been used in conjunction with the related Behaviour Change Wheel to develop an intervention aimed at promoting regular, long-term use of hearing aids. Qualitative interviews with audiologists suggested that collaborative behavioural planning for hearing aid use is more likely to occur if their psychological capability, physical and social opportunity, and reflective and automatic motivation were addressed.

In the final paper (Coulson, Ferguson, Henshaw & Heffernan) we review the current evidence for a range of popular health psychology models and theories. This paper acknowledges the valuable work that has taken place within health psychology, whilst also pointing to a number of limitations within these models, which affect their ability to form the basis of behaviour change interventions. Our paper discusses how the recently developed COM-B model and Behaviour Change Wheel, in conjunction with the Theoretical Domains Framework, may hold promise for developing and evaluating hearing health interventions.

As the field of audiology progresses, the reporting of interventions needs to become standardized in order to accurately consider and review the efficacy of such interventions.

We hope that this special issue provides a 'go-to' summary of some of the most commonly used health psychology models and their application in hearing health research, and serves as a springboard for future theoretically-driven research.

Guest Foreword: On the links between health psychology and audiology research

Hearing impairment is currently ranked higher in disease burden than diabetes and is projected to be in the top ten disease burdens in the UK by 2030. Despite this, health psychologists (and the medical profession in general) have been slow in recognizing hearing impairment as an important public health issue. For example, a brief search of the leading journal *Health Psychology* (audiol* OR hear*), revealed zero hits in *Health Psychology*'s 35-year history (cf. "diabet*" = 131 hits). This is surprising given that a lot of the problems in hearing research (e.g. uptake of hearing screening, patient reactions to impaired hearing diagnosis, uptake and sustained use of hearing aids) are common to many problems that occupy sizeable column inches in *Health Psychology* (e.g. diabetes, cancer, cardiovascular disease, obesity).

It is therefore timely that the *International Journal of Audiology* should dedicate a special issue to the role of health psychology in audiology as a welcoming gesture to health psychologists in general who have, relatively speaking, neglected hearing health issues. The word "relatively" is operational because this special issue (and indeed previous issues of the *International Journal of Audiology*) provides clear evidence that audiologists and health psychologists have been, and continue to, work productively together. The authors who have contributed to this special issue are at the vanguard and I anticipate rapid strides in improving hearing care and patient outcomes through enhanced audiology-health psychology collaborations.

The papers in this special issue report genuinely novel applications of sometimes decades-old theories in health psychology to audiological outcomes. These studies are important because they broaden the domains and samples to which health psychology theories have been applied and offer new insights into what is missing from psychological accounts of behaviour as applied to problems in audiology. In return, an enduring problem for health psychologists is the objective measurement of health behaviours in ways that are unobtrusive, valid and meaningful. For audiologists, data are routinely downloaded directly from hearing aids and can be analysed to assess uptake and adherence to a fine degree of accuracy that should be the envy of health psychologists interested in measuring behaviours such as cigarette smoking or dietary intake.

In sum, the present impressive body of work shows that health psychologists and audiologists have a lot to learn from one another but that we can be optimistic about more concerted efforts to tackle hearing health from perspectives outside audiology, including health psychology and beyond.

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