Letter to the Editor

Changing Behavior: Theoretical Development Needs Protocol Adherence

The Behavior Change Consortium (BCC; Bellg et al., 2004) maintains that rigorous evaluation of behavior change interventions requires strict adherence to protocol-driven study designs, provider training, intervention delivery, understanding of the intervention (receipt), and use of intervention skills (enactment). Leventhal and Friedman (2004) cautioned that this approach may be "a barrier to theoretical and empirical work needed for the development of a science and practice of interventions" (p. 456).

The BCC is primarily focussed on the relationship of behavioral changes to desired clinical outcomes and considers the behavioral intervention to include intervention delivery, receipt, and enactment. There are two reasons that this is not helpful. The *Oxford English Dictionary* (*OED Online*, 2005) defines an intervention as an "action of intervening, 'stepping in', or interfering in any affair, so as to affect its course or issue," that is, the actions of the intervener, not the recipient. It is conceptually more coherent to consider receipt and enactment as part of the response to the intervention rather than as part of the intervention.

Because behavior change interventions are designed to change behavior, behavior should be the primary outcome (Michie & Abraham, 2004). There are many reasons that interventions may be effective in achieving the desired behavior change but do not translate into desired clinical outcomes (Campbell et al., 2000). Behavior is not an isolated event, but it is part of a process that includes perception, understanding, and preparatory behaviors. If people do not respond to the intervention as intended (e.g., poor understanding or adherence to intervention requirements), the nature of the intervention and how it is delivered should be modified. In other words, provider training and intervention delivery are independent variables, and receipt and enactment are dependent variables.

Improving the effectiveness of behavioral interventions requires knowledge of how these inventions work. Leventhal and Friedman (2004) argued that assessing variation in response to interventions across situations, providers, and participants is a necessary part of building a theoretical understanding of the process of change. This is a point well made. They also criticized "forcing the delivery procedure into a rigid, manualized treatment" (p. 454). However, unless one is clear that the delivered intervention is the one planned, one can make no claims about the theoretical basis of effective interventions. It does not matter whether the planned intervention is a flexible application of behavioral components or whether it is rigid and manualized: One should be clear about which it is and assess its fidelity accordingly.

It is possible to combine a manualized intervention that delivers theory-based behavioral components with an assessment of the behaviors shown in practice by those delivering the intervention (Hardeman, Michie, Prevost, Fanshawe, & Kinmonth, 2003). Thus, data can be collected on which aspects of the manual were adhered to and which intervention components were delivered, and therefore had the potential to change behavior. In this way, two areas that are necessary for intervention development can be advanced: the understanding of the theoretical basis of behavior change and the pragmatic difficulties of intervention delivery.

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