COMMENTARY ON CROSBY AND NOAR

PRECEDE-PROCEED and the NIDA stage model: the value of a conceptual framework for intervention research

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Crosby and Noar describe a thoughtful model for dental intervention research. They highlight the wisdom of planning "backwards," with the end goal in mind, and with maximal community input. Crosby and Noar emphasize that although not mandatory, theory can play a valuable role in the development of these health interventions. They also highlight the value of examining process, and the ultimate impact and outcomes of interventions. Their planning model describes a framework for health intervention development that is logical and strives to increase knowledge about the process of interventions.

The value of having such a model can be critical to the success of a field, as evidenced by advances made in the development of behavioral treatments for drug abuse. The National Institute on Drug Abuse (NIDA) announced its Behavioral Therapies Development Program in 1993 (RFA-DA-94–002: http://grants.nih.gov/grants/guide/rfa-files/RFA-DA-94-002.html), guided by a model that has come to be known as the Stage Model (1-3). Early iterations of the program outlined a systematic process for developing behavioral therapies, moving from the development, refinement, and pilot efficacy testing of behavioral interventions for drug dependence (Stage I), to efficacy testing and replication of promising piloted behavioral therapies (Stage II), to studies to test the generalizability and transferability of behavioral therapies proven efficacious (Stage III). Subsequent NIDA Program Announcements have further refined the Stage Model, defining more clearly the activities expected in each stage, and clarifying that therapy development often requires an iterative movement between the stages, rather than a linear progression. Also, the NIDA Stage Model has strengthened its emphasis on research to understand how and for whom treatments work (i.e., their "mechanisms of action") at every stage of treatment development. The Stage Model has been a useful conceptual framework for the development of behavioral interventions for drug abuse, human immunodeficiency virus prevention, mental health, and treatment adherence.

The Stage Model has enabled researchers to develop new interventions and to modify, refine, pilot, and test these interventions to the point where it is known if and how they can be effectively utilized in the "real world." In Stage 1 (early intervention development and refinement), this model encourages the incorporation of ideas from multiple avenues, such as from basic behavioral science or neuroscience (e.g., "T1" translational research) or from clinical evidence. In addition, Stage 1 involves establishing the feasibility and acceptability of interventions before they get tested further. Stage 2 primarily involves efficacy, adaptive treatment, or dose-response testing. Although no methodology is prescribed in *any* Stage, research in Stage 2 is meant to occur under highly controlled circumstances, with providers who are trained to administer interventions with high fidelity.

Stage 3 involves testing the efficacy of interventions with community providers and in community settings, where questions about the transportability of interventions are central. Stage 3 is the preparatory step before true effectiveness testing, still utilizing rigorous measures and methods to test for intervention efficacy. The NIDA Stage Model makes a distinction between Stage 3 research to understand aspects of the treatment that may need to be modified before use in community settings, and research that focuses on potential changes needed to the service delivery system to implement an intervention in community settings. Using an analogy, when fitting treatment into a service delivery system is like fitting a square peg into a round hole, Stage 3 research focuses on changing the square peg (i.e., treatment), rather than changing the round hole (i.e., the service delivery system). Progression beyond Stage 3 to effectiveness studies occurs only after the intervention has been adapted to work well in the hands of community providers in community settings.

Although the PRECEDE-PROCEED Model and the Stage Model developed independently, and have been used to solve different public health problems, there are a number of striking similarities between the two models: a) planning with the end product in mind; b) an iterative framework; and c) the focus on process (PRECEED-PROCEED) and the focus on mechanism of behavior change (StageModel). Both models serve to underscore the value of a thoughtful, logical process to intervention development that results in interventions that can be implemented successfully to improve the public health.

Conflict of interest

The author declares no conflict of interest.

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