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# Adolescent Pregnancy Prevention Programs and Research: A Time To Revisit Theory

Those of us engaged in the study of the effectiveness of adolescent pregnancy prevention interventions under the Office of Adolescent Health funding have dedicated time and effort to ensure the technical quality of these investigations; we have applied rigorous methods and adhered to careful reporting standards so that the estimates from our randomized trials or high-quality quasi-experimental studies can have a credible causal interpretation.

As we seek to interpret the results from this research, individually and cumulatively, it is an appropriate time to critically revisit the ideas—the theories—that ostensibly form the basis of the programs we are studying. While behavioral outcomes are rightly the focus of the Department of Health and Human Services’ evidence review and Office of Adolescent Health’s Teen Pregnancy Prevention program, understanding why these programs influence youths (or fail to do so) requires a shift of focus to the intervention’s logic model.

## INCONSISTENT EVIDENCE

When we consider the evidence on programs that aim to reduce adolescent pregnancy, sexually transmitted infections, and sexual risk behaviors, we are confronted with a picture that

is puzzling. Some studies find interventions produce evidence of behavior change while others do not.<sup>1</sup> This variability persists within and across specific programs and time. Making sense of this puzzle requires a critical investigation of the posited processes by which the interventions are hypothesized to effect change, the application of these theories by researchers and developers, and the alternative theories that may help augment these approaches.

For instance, the theory of planned behavior and social cognitive theory (and variants of these) are among the most commonly employed theories in pregnancy and sexually transmitted infection/HIV prevention programming.<sup>2</sup> These theories have been used to predict a broad range of behaviors in correlational studies. Results from causal analyses, however, have been uneven. Interventions based on these theories may influence necessary mediating variables, but fail to effect change in the desired behavioral outcomes.<sup>3</sup> They may also demonstrate positive impacts on behavior, but when they do, the observed effects tend to be modest, inconsistent, or diminish over time.<sup>4,5</sup>

## THEORY APPLICATION

Some of this may be the result of poor application of these

theories. Researchers may not be operationalizing the constructs in a way that is consistent with the theory or with other applications of the theory that exist in the literature. The mediating factors in social cognitive and planned behavior theories are latent constructs that can be difficult to measure. If validated instruments exist they may not measure the specific objects that are the target of the intervention, or they may contain too many items for a questionnaire designed primarily to measure behavioral outcomes. As a consequence, scales may be unreliable, invalid, or may fail to measure the desired construct.

Another complicating factor is that while these theories are often invoked, the connection between the theory and the programmatic components may be nebulous. Developers may identify a theoretical basis but fail to explicate or even fully consider how program components are related to key mechanisms or constructs that the theory identifies as necessary. If such an intervention fails to influence behavior, it seems spurious to infer anything about the theory itself.

## THEORY LIMITATIONS

But there are also reasons to expect that the social cognitive and planned behavior theories may be limited on their own to effect lasting and meaningful risk reduction in adolescent sexual behaviors. First, at a basic level, any practicable intervention of this sort will be limited in the dosage it can provide. Whatever the programmatic exposure, it is likely modest in magnitude and perceived salience compared with the myriad other stimuli that compete for the attention of the adolescent mind each day and over time. Moreover, even if the program succeeds in changing beliefs, attitudes and intentions, the forces that brought about the change will likely diminish once the program ends. Whatever change that occurs as a result of a social cognitive intervention may therefore be expected to regress in time.

Next, what might seem like an obvious point: the social cognitive and planned behavior theories have been developed for the explanation of human behavior in general and not specifically for the reduction of sexual risk behaviors among adolescents. Given the complex factors that we currently understand are relevant to the reduction of high-risk adolescent sexual behavior, the modest or uneven impacts are not surprising. All behaviors may not be modified similarly or as robustly through intentional

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or self-regulated motivational strategies. Consider, for example, how an effort to improve study habits differs from reducing high-risk sexual behaviors. Whereas the former has context variables that are comparatively controllable, permit regular performance feedback, and allow for persistent goal striving (all features that research suggests will improve the likelihood of goal achievement), the latter likely has none of these advantages.<sup>6</sup> This suggests that for most adolescents, because sex happens infrequently, intentional efforts at regulating sexual risk behaviors will cease to remain an active goal over time. As Bandura argues, intentions stimulate effortful action only when people perceive a discrepancy between their current state and the targeted standard.<sup>7</sup> In other words, it is not the goal that motivates intentional action, but the awareness of the gap between where one is and where one wants to be. Additionally, and perhaps more compelling is the fact that (especially) for adolescents, there is a fundamental motivational conflict that exists between any conscious, intentional, and self-preserving

goal to reduce high-risk sex and an unconscious and autonomous impetus to have sex. Especially given that the opportunities to have sex are occurring in an emotionally charged situation, the agentic intent may not be as salient as the unconscious need.<sup>5</sup>

## NEED FOR INNOVATION

This is not to underestimate the value of these models; however, we need to critically assess where they fail to generate meaningful behavioral change, and then we should deliberately apply other theoretically promising ideas into adolescent pregnancy prevention interventions. From a psychosocial point of view, incorporating approaches that recognize that the behavior we seek to modify is motivated largely by non-intentional, unconscious (and situationally opposing) drives is past due. But, as others have argued, an intervention need not necessarily (or exclusively) be directed at internal psychological mechanisms to alter behavior.

Indeed, the psychosocial theories are limited in their capacity to address the social processes that are currently considered relevant to sexual behaviors and prevention of adolescent pregnancy. An array of other theoretical processes—biological, social, normative, ecological—have been identified as predictive of sexual behavior.<sup>1,2,4,5</sup> The next and critical step is to identify which of these theories can be applied in the context of an intervention and then to empirically test whether the application of those models meaningfully impacts the sexual outcomes we seek to change. The Office of Adolescent Health has initiated a process by which to develop and evaluate innovative approaches to adolescent pregnancy prevention. It is up to developers and researchers to be collaborative and constructive with this opportunity to identify, apply, and then test new models of change. **AJPH**

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intervention found increased sexual abstinence and reduced condom failures.<sup>4</sup> That evaluation was conducted in person with participants who made appointments for study visits where they watched video and reported their behavior using paper-and-pencil measures.

# Video for Adolescent Pregnancy Prevention: Promises, Challenges, and Future Directions

Adolescent pregnancy prevention interventions increasingly use video, especially video delivered remotely over the Internet.<sup>1,2</sup> This use of video brings substantial benefits but also costs, which are detailed below based on our experiences with a randomized controlled trial in multiple sites,

including both rural and urban settings.

Our team conducted a multi-site randomized controlled trial (clinical trials NCT02049710) to evaluate the interactive video intervention *Seventeen Days* relative to an interactive video control on safe driving, measuring behavior six months after

intervention.<sup>3</sup> An evaluation of an earlier version of the

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