Using Behavioral Theories to Design Abstinence Programs

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Abstract

If adolescents abstain from sex, or delay having sex, the risk of pregnancy is essentially zero, and the sexual transmission of a communicable disease is diminished substantially. Whatever other, nonpublic health reasons one may have for preferring abstinence as an approach to the prevention of teen pregnancy, the potential for a sizable reduction in rates of adolescent pregnancy supports abstinence as a reasonable strategy. The issue of abstinence as an approach has less to do with the desirability of the goal than with figuring out successful ways to persuade adolescents to comply. While numerous abstinence programs have been implemented, no “silver-bullet” strategies have been identified to date. Abstinence interventions (like most efforts to prevent teen pregnancy) are usually ad hoc, implemented opportunistically, or designed on the basis of a personal hunch. Few programs have been evaluated, and among those with evaluations, most have shown very little effect on the timing of sexual debut. When effects are found, they have been fairly small, with teens delaying sex for a matter of months, when the goal is to delay sex for a few years. While hunches and experience in the field provide useful insights, it is time to be more systematic in developing new intervention approaches and incorporating research knowledge and theory.

This paper highlights scientific evidence regarding the factors most likely to influence the onset of sexual activity during adolescence and examines program strategies with the greatest potential to affect adolescent sexual behavior given research findings. The importance of rigorous evaluations, and suggestions for strengthening the evaluation

of abstinence- focused interventions and adolescent pregnancy prevention programs in general, is discussed.

Introduction

If adolescents abstain from sex, or stop having sex, the risk of pregnancy is essentially zero and the odds of getting a sexually transmitted disease (STD) are vastly reduced. Regardless of the public health or moral reasons one may have for preferring abstinence as an approach, simple mathematics support the notion of abstinence. Unfortunately, the political and public debate has focused more on whether abstinence is the desirable goal and less on figuring out the most effective ways for securing abstinence among adolescents. To understand better which factors are most strongly linked to adolescent fertility-related behavior, and which interventions show the greatest promise for preventing pregnancy, Child Trends reviewed findings from scientific research and evaluations of pregnancy prevention programs that concern adolescent sexuality and fertility behavior. In the current paper, we highlight findings and interventions from that review relevant for preventing or delaying the transition to first sex. We note that, like most adolescent pregnancy prevention efforts (irrespective of the desired behavior outcome), no "silver-bullet" solutions for getting adolescents to abstain from sex have been identified. Abstinence-focused interventions, like most pregnancy prevention programs, are usually ad hoc, implemented opportunistically, or designed on the basis of a hunch. Few programs are wellgrounded in scientific or behavioral theory, and few employ strategies appropriate for securing the desired behavior.

In addition, while successful approaches most likely exist, evidence of that success is lacking, as few programs have been evaluated rigorously, if at all. It is unfortunate that so little attention has been given to rigorous evaluation, as this failure has undermined the capacity of the field to learn incrementally and to move forward with stronger and more effective intervention strategies. Among those programs that have been evaluated, most have shown very little effect on the timing of sexual debut. When effects are found, they have been fairly small, delaying onset of sex for a few months rather than a few years. The field needs a more systematic approach to developing new interventions and identifying which interventions hold the greatest promise for affecting adolescent sexual behavior.

To address this issue, we need to answer several initial questions on the basis of theory and previous research. Specifically, we need to consider: (1) what theoretical frameworks are appropriate for influencing sexual behavior among adolescents?; (2) which adolescents should be the focus of the intervention; (3) how long the

intervention should continue to achieve the desired results; (4) whether the intervention should take a punitive or a positive approach to behavioral change; (5) what specific program activities or services should be provided, and (6) what type of evaluation design should be employed, and what the most appropriate focus of the evaluation is. In the following pages, we address each question and offer possible answers based on findings from empirical research and program evaluations.

The Theoretical Framework

Most initiatives have some basis in at least an implicit theory. Providers often have an intuitive feeling for what teens need, but programs are less commonly based on a formally articulated model or on a clear theoretical framework. We argue that programs could be more effective if built on a strong knowledge base grounded in the findings of basic research and theoretical models. A theoretical model not only provides a context for understanding the factors presumed to influence the behavior but also offers a clear rationale for the precise manner in which those influences are presumed to take place. Specifically, a theoretical framework lays out the underlying assumptions regarding the factors that influence behavior (that is, the influence of self-esteem on sexual activity) and identifies how such factors affect that behavior (that is, how diminished self-esteem reduces a teen's ability to withstand peer pressure to have sex).

Researchers have used several theories to explain adolescent sexual and fertility behavior and, to a lesser extent, to develop pregnancy prevention programs. Some theories are quite narrow and presume that a small set of individual or personal characteristics are key to human behavior. For example, the *social and cognitive skills model* that Gilchrist and Schinke (1983) developed and tested posits that for behavior to change, individuals need specific cognitive and social skills to resist pressures and to negotiate interpersonal interactions successfully. They do not address personal values or attitudes toward the behavior or whether other factors may influence behavior change.

Other theories provide a somewhat broader framework for how people learn varied behaviors. For example, the social learning theory (Bandura, 1977,1986) assumes that whether an individual will engage in or avoid a behavior is determined by a sequence of factors. First, the individual must understand the association of a behavior with an outcome, for example, that unprotected sex carries a high risk of pregnancy. Second, the person must believe that he or she is capable of either engaging in or avoiding the behavior and that the specific strategy chosen can be implemented effectively. For instance, individuals must believe that they have the capacity to abstain from sex and that they can effectively employ a strategy to avoid sex. Finally, people must believe

that avoiding the outcome is beneficial, for example, that delaying sex will make their lives better in ways that matter to them. Individuals develop their specific attitudes and feelings about behaviors for themselves by observing the behaviors of others, by observing the rewards and punishments the behavior (and the avoidance of the behavior) elicits, and then by developing the necessary skills through practice that enable them to behave in accordance with the beliefs they develop.

A number of other *value-expectancy* models also take account of the costs and benefits associated with engaging in or avoiding a specific type of behavior. According to the *health belief model*, for example, the probability that persons will engage in a particular preventive behavior, such as abstinence, is based on several personal perceptions (Janz & Becker, 1984; Rosenstock, Strecher, & Becker, 1988). These include (1) their perception of the probability of an outcome as a result of the behavior (for example, pregnancy as a result of unprotected sex); (2) the perceived seriousness of experiencing the outcome (for example, not being able to complete school); and (3) the perceived benefits minus the perceived costs of avoiding the outcome (that is, completing school outweighs the difficulty of saying no). The health belief model proposes that a person considers each of these criteria before engaging in a protective or preventive behavior. Thus, protective behavior is most likely to occur if the adolescent perceives himself or herself as vulnerable to an outcome, perceives the outcomes as negative, and perceives the benefits of protection to outweigh the costs of protection.

Other theories such as the *theory of reasoned action*, emphasize individual perceptions (Fishbein & Ajzen, 1980, 1975). This theory emphasizes the importance of an intention to engage in a behavior and attempts to explain the factors that determine that intention. Factors presumed to influence such intentions consist of (1) one's belief regarding the outcome of the behavior in question; (2) one's assessment that the outcome of the behavior is good or desirable; (3) one's assessment that the outcome is desired by significant others; and (4) the individual's motivation to comply with the preferences of these significant others. According to this model, an adolescent would have to believe that avoiding sex will prevent pregnancy and sexually transmitted diseases, that avoiding pregnancy and STDs is desirable, that the significant persons in their lives want them to avoid pregnancy and STDs, and that they want to comply with the views of the significant persons in their lives.

The *opportunity cost perspective* also takes a cost-benefit accounting approach and puts specific emphasis on whether an adolescent feels a particular behavior will have negative consequences for him (Moore, Simms, & Betsey, 1986). This theory emphasizes the notion that adolescents in different segments of the socioeconomic

distribution face very different costs to pregnancy if it occurs. Thus, pregnancy represents a much more substantial cost to a college-bound adolescent than to an adolescent whose future does not realistically include a good education, a good job, a good income, or a good marriage. The motivation to prevent parenthood is therefore substantially lower for adolescents from disadvantaged families and communities.

The *culture of poverty perspective* (Lewis, 1959, 1961, 1966) also focuses on the role that poverty and socioeconomic disadvantage play and argues that early sex and childbearing among impoverished persons represents "both an adaptation and a reaction of the poor to their marginal position in society" (Lewis, 1968, 168). The distinction of this theory, however, is the argument that such behavior becomes normative and is passed on from generation to generation.

Utility maximization perspectives, such as the opportunity-cost perspective (Moore, Simms, & Betsey, 1986), tend to focus less on long-term norms and more on the varied individual costs and benefits associated with sex, contraception use, and fertility (Philliber & Namerow, 1990). Studies based on such frameworks have examined the utility derived from sex among adolescent males as well as females and have explored the role of a wide array of benefits, not just economic ones (Hingson, Strunin, Berlin, & Heeren, 1990). The authors find that social utilities, such as popularity with peers, also affect adolescent decision making. Thus, the notion of relationships emerges, even among the more traditional utility maximization paradigms.

In general, cost-benefit approaches to teen sexual behavior are fairly persuasive, theoretically. Various interventions employing these approaches, however, capture costs and benefits in very different ways. Some interventions have attempted to alter adolescents' perceptions of costs and benefits (for example, bringing in a teen mother to talk about the difficulties of adolescent parenthood); some interventions have worked to enhance the real gains to an individual from engaging in one type of behavior and avoiding another (for example, providing funds for postsecondary education for nonparents). More rarely, interventions have attempted to alter generally and broadly alter the actual rewards or gains associated with behavior in a community, changing the actual employment prospects of adolescents (for example, the Youth Incentive Entitlement Project. At this time, it is not known which approach, if any, shows more promise than another or for whom a given approach is more effective. Changing the perceived, the individual, and the broader social opportunities in the same intervention represents a very challenging approach. It is a strategy that, nonetheless, warrants serious consideration.

On Whom Should an Intervention Focus?

Data on trends in adolescent childbearing and sexual activity indicate that the age of first sex has decreased substantially in the past two decades. In 1988 (the year for which most recent data are available), more than half of adolescent females and nearly two-thirds of adolescent males had had sex by age 18 (Alan Guttmacher Institute, 1994). Among some population subgroups, the average age at first sex is even lower. For example, data tabulated from the Youth Risk Behavior Survey, and the National Health Interview Survey (Moore, Miller, Glei, & Morrison, 1995a, Figure II-C) indicate that nearly 20% of non-Hispanic black males report having had sex by age 12, and roughly 40% have had sex by age 14. Such findings indicate the need for abstinence programs to reach youth well before adolescence, perhaps even as early as elementary school age, especially for some population subgroups.

Studies employing a life course perspective also draw our attention to the notion that development occurs across the stages of the life span and suggest the possibility that interventions may and perhaps ought to focus on life-cycle stages other than adolescence. For instance, while most pregnancy prevention interventions focus on adolescents (for example, junior and senior high school students), studies indicate that many of the factors that predispose adolescents to early sex (for instance, early problem and school behaviors) begin before adolescence (Moore et al., 1995a). In addition, studies consistently indicate that adolescents, both male and female, who are positively engaged in school and who eschew problem behaviors, such as acting out in class, are at a lower risk of early parenthood (Moore, Manlove, Glei, & Morrison, 1997; Zabin, 1994). Thus, it might make considerable sense to focus on children of elementary school age, and even preschoolers, to reduce risk factors such as early school failure and early behavior problems that so frequently precede early sexual activity among youth. Programs that focus on young children might enhance their preschool or early educational experiences, improve the chances for educational success and school engagement during preadolescence and adolescence, and thus reduce the risk of sexual activity. There are, obviously, many other reasons to encourage stronger preschool and early childhood educational programs. Delaying sex and pregnancy may be an added benefit to such early and sustained investments in children.

Scientific research also indicates that multiple factors influence the transition to first sex, and the manner in which such factors do so is particularly complex. Determinants of sexual behavior include families, peer groups, schools, and communities, as well as individual factors. Thus, targeting solely the adolescent ignores the full range of factors that influence adolescent sexual behavior, and diminishes the potential for success.

Other population subgroups may be an important focus of abstinence interventions. One such subgroup appropriate for involvement in efforts to prevent pregnancy prevention and encourage abstinence is young adults, particularly young adult males. Many prevention programs acknowledge that the partners of sexually active female adolescents are often somewhat older than the adolescent, often in their late teens or early twenties. Whether these are coercive or exploitative relationships or just relationships that undermine the prospects for an adolescent to avoid sex, an important focus may be not just the young adolescent but the somewhat older partner. Few studies have examined the factors that may contribute to sexual relationships among somewhat older young adult males with adolescent females, particularly those relationships that are not overtly abusive or exploitative. Several pregnancy prevention efforts, however, have targeted at-risk males specifically to address the importance of sexual and contraceptive responsibility, to help young men redefine and understand the meaning of manhood and fatherhood, and to offer opportunities for education, training, and employment.

Another important subgroup to target is older siblings. Studies show that younger siblings are more likely to have initiated sex at any given age than their older siblings when they were at the same age (Rodgers & Rowe, 1988). These differences are larger for same sex than for opposite-sex sibling pairs and stronger for whites than for blacks. The reasons for the earlier age at first sex among younger siblings are unclear, however. According to one argument, siblings tend to be powerful role models and confidantes as they occupy a relatively similar status in the family power structure. Older siblings (who may themselves be sexually active or have started to express interest in members of the opposite sex) serve as models for younger siblings. Younger siblings may strive to model the more “mature” or sophisticated behavior of their older brothers or sisters. Programs might involve older siblings to educate them about the ways their behavior can influence the behavior of their younger brothers and sisters and as a way to develop strategies to help siblings encourage their younger brothers and sisters to delay sex.

In addition to older partners and the individual teen, adults, especially parents, play an important role in the adolescents’ predisposition toward early sex. Parents with children, particularly preadolescent or adolescent children, need to recognize their potential for helping adolescents delay sex. Indeed, studies indicate that healthy and positive family and parent-child relationships are important for delaying the transition to first sex (Moore et al., 1995a). Specifically, parental attitudes toward sex, family rules and monitoring, and parent-child communication are some of the factors that influence adolescent sexual behavior. In particular, when problems within the family or

between parent and child increase, the influence of others, such as peers, also increases (Benda & DiBlasio, 1991). If such influences are negative or if those influences act to predispose the adolescent toward sex, the likelihood of sexual activity increases.

Other adults such as teachers, youth workers, religious leaders, and coaches, who work with adolescents may be important intervention targets. Social workers or youth service providers–particularly those dealing with adolescent runaways or teens with alcohol or drug problems or those working with children in foster care–often face multiple-problem adolescents at high risk for early sexual activity and pregnancy. In some cases, such people may be important and appropriate target of intervention efforts.

A related issue is whether to focus on an individual (whether the teen or adult) or on a group. Because children become increasingly focused on peers as they enter adolescence, it may be valuable to focus on peers as a target group. For example, interventions might work with peer groups to change the values and activity patterns of individuals as well as their friends, to increase the support for abstinence received by a youth, and to provide alternatives to sexual activity.

Interventions might focus on families. Although parent-child relationships are important during adolescence, those relationships often exist within a broader context. More important, for some youth, particularly those at an increased risk for early sex, the family unit may consist of single parents as well as extended family members who also play a role in the adolescent's daily life. Parents and other kin can be enlisted to help families develop more positive patterns of interaction, communication, discipline, and activity that can help adolescents delay sex.

What Should Be the Focus of an Intervention?

Depending on the underlying assumptions of an intervention, programs may employ a variety of approaches or strategies to foster abstinent behavior. For instance, interventions could include an education or information component, if one presumes that knowledge and information about sexuality or sexual and reproductive health and the risks of sex is sufficient or helpful to adolescents to avoid engaging in intercourse. In fact, many abstinence- focused programs (as well as teen pregnancy prevention programs in general) include information-based instruction. Evaluation studies, however, clearly document that didactic approaches alone are not effective in changing behavior, particularly avoiding sex (Kirby, 1997). Rather, programs that combine information with skill building activities demonstrate somewhat stronger and more sustained impacts. Thus, providing information can be an important component in an intervention, particularly when combined with other strategies.

Modules can also address attitudes or values supportive of abstinence or the development of skills to help teens avoid peer pressure and negotiate difficult interpersonal relationships. Studies suggest, however, that motivation to abstain is key and may thus be more important for avoiding sexual activity than simply knowledge or even skills. That is, armed with information and skills to avoid sex, some teens may still put themselves at risk if the underlying desire to use the information and skills is insufficient or nonexistent. We know relatively little, though, about what truly motivates a teen to postpone having sex. From an ecological perspective, the factors that predispose one to engage in sexual activity range from the individual adolescent and his or her partner, to the nuclear family, to the extended family, peer group, neighborhood, religious organization, and school, and to the larger culture including the media, the economy and laws and social policies.

Studies show that proximal factors (for example, individual or family) have a stronger effect on sexual behavior than more distal factors (such as policies), though, factors in the broad social context have been found to play a role in teen pregnancy as well (Moore et al., 1995a). In addition, studies have also documented dramatic changes in attitudes and values regarding sex, marriage, and gender roles over the past several decades (Thornton, 1995), suggesting that larger social changes, whether socioeconomic or attitudinal, can influence individual sexual behavior.

Recognizing that sexual behavior is affected by multiple influences points up the need for interventions to focus on more than one level to get adolescents to avoid sex. Thus, interventions should provide knowledge, address attitudes and values relating to the avoidance of sex, and provide skills to help adolescents delay sexual intercourse and maintain their abstinent behavior over time.

What Activities or Services Should Be Provided?

The question of what type of activities or services should be provided to help adolescents abstain from sex has not been systematically addressed. That is, while studies are fairly clear about the limited benefits of an education-only approach relative to an education and skill-building combination, for example, we know little about what types of activities best transmit the information, skills, and desired attitudes to adolescents, who should lead those activities, and to whom they should be delivered. For instance, does a lecture-style education session combined with role-playing help adolescents retain the information and skills better than a 30-minute information video followed by group discussion or better than a computer simulation or interactive game? In addition, to what extent do “intangibles” or interpersonal dynamics of the program influence the degree of success of a particular intervention? That is, what role does the

charismatic program administrator or dynamic young mentor play in the transmission of the program activities? To what extent are program effects a result of the intervention strategy or the result of the relationships that develop in the course of engaging in those activities?

Moreover, our understanding of which activities or services are most appropriate for various population subgroups is virtually nil. Given the diversity of the adolescent population and the communities in which they live, we suspect that a variety of strategies and combination of strategies should be explored and evaluated.

One strategy that has been found to be helpful in the implementation of pregnancy prevention programs is the use of peer educators or youth slightly older than the target population, as in *Postponing Sexual Involvement* (Moore, Sugland, Blumenthal, Glei, & Snyder, 1995b).

Experience, scientific research, and conventional wisdom all suggest that comprehensive programs are needed for disadvantaged and at-risk youth. Hard evidence in support of a comprehensive approach, however, is lacking. While numerous factors influence sexual behavior and evidence shows that some factors play a more significant role than others, programs rarely target the multiple factors deemed by scientific evidence, or even conventional wisdom, to be important.

In general, we posit that the intensity of activities should vary with the degree of need of a youth. While some teens from advantaged families suffer from an overload of activities, teens from disadvantaged families and those from communities that lack recreational, artistic, and academic opportunities may require a substantial array of services and activities. The nature of the specific activities is probably less important or may depend on the individual adolescent, so long as teens are positively engaged in one or more activities.

Should Interventions Be Positive or Punitive?

Recent policy discussions have taken a strong punitive approach to the prevention of teen pregnancy. From garnishing wages for child support to enforcing statutory rape laws to requiring teen mothers to remain at home and in school, policy makers have attempted to up the ante, to make adolescent parenting more onerous.

Psychological research shows, however, that positive reinforcement is a more effective strategy than punishment for internalizing behavior (Berger, 1983; Amato, 1989). Positive approaches, then, might be more successful in achieving abstinent behavior among adolescents than the punitive approaches considered part of welfare reform.

We would go a step further and argue that a combination of positive and negative strategies may be the most effective. We know from numerous studies that effective families support and monitor, nurture and direct, reward and punish their children. The correct balance is difficult for parents to attain, not to mention for government and community-based prevention programs. Research, though, clearly indicates the need for programs to combine positive and negative components.

How Long Should an Intervention Continue?

Most prevention programs consist of a relatively short-term intervention (a few weeks or few months), which is rarely followed up with additional activities over time or throughout the stages of adolescence. Yet available studies show that short-term programs usually have short-term effects (Moore et al., 1995b). Specifically, initial changes often disappear over time without continuing program involvement. While it may be difficult for a small community-based initiative to provide services continuously or even periodically over the course of several years, continued program participation or the provision of "boosters" over time may be necessary to maintain initial gains.

The appropriate duration of a program probably depends on the degree of risk of the adolescents being served. Program developers need to recognize the enormous heterogeneity among families and youth participants, not only in their socioeconomic status and background, but also in the range of available sources of social support to avoid early sex. For example, college-bound adolescents from strong families who provide support and monitoring may benefit from sex education in junior and senior high school. Children from disadvantaged and dysfunctional families who are already having trouble in elementary school, though, may need early and continuing assistance through high school.

Another issue is whether the goal of abstinence programs is to delay sex until a certain age or until marriage, as this decision significantly affects how long the intervention should last, at least in theory. That debate reflects values more than research, in part because the research base is quite thin. It seems to us that sex should be delayed at least until adolescents are able to understand fully, accept, and fulfill the responsibilities of parenthood or to avoid pregnancy. There is a research base on the consequences of the timing of parenthood, which suggests that delaying parenthood until age 18 is not sufficient in a modern industrial economy (Maynard, 1996). Delaying parenthood until the mid-twenties may be desirable, and abstinence represents one avenue to that desirable outcome. We know of no studies, however, that have examined the feasibility or effectiveness of efforts to delay sex until the mid-twenties or to delay sex until marriage.

What Type of Evaluation Design Should Be Employed?

There are, broadly speaking, two kinds of evaluations — process evaluations and impact evaluations (see Devaney & Rossi in this volume). Process evaluations help program designers know whether intended services are being delivered to a group and in what amounts. As for impact evaluation, the only evaluation design that can provide information about the effect of a given program with any certainty is an experimental evaluation, specifically, a study in which eligible entities are randomly assigned to the experimental group that gets the treatment or the control group that does not get the treatment. (See chapters by Dynarski and Metcalf in this volume.) While virtually every program should incorporate some kind of process evaluation, not every program needs or merits an impact evaluation. Such a major and expensive evaluation strategy is appropriate for the most promising approaches, where there is a carefully designed and well-developed program, where the process evaluation indicates that services are being delivered, and where random assignment is feasible.

Conclusion

There is no shortage of opinions about what will reduce adolescent pregnancy, nor is there a shortage of program models. What is in short supply, however, is objective empirical evidence identifying specific programs or policies that will reduce teen pregnancy, either through delaying sexual intercourse or improving contraceptive use among sexually active adolescents. Furthermore, not only has no one found a single silver-bullet program, but attention to previous research and theory suggests that a single silver-bullet solution is unlikely. Program planners, however, should take time to consider several factors before implementing a pregnancy prevention initiative, irrespective of the desired behavioral outcome. First, it is important to define clearly what behavior is desired (for example, no sex until marriage; no sex until mid-twenties), the program's underlying assumptions about the behavior desired and the factors that influence the behavior, and which key factors the program will address.

Second, one should decide whom the intervention should target. Will the intervention focus on adolescents, preadolescents, or children of elementary school age? Will the intervention also include other individuals who may be important to the teen's behavior, such as peers, the teen's family, or the teen's potential sexual partners? Will the intervention address the larger community or neighborhood context in which the adolescent lives, either by collaborating with local institutions such as youth service organizations or local churches or by addressing socioeconomic or other opportunities that may influence adolescent behavior?

Third, which strategies and activities are most appropriate for securing behavior change given the desired behavior outcome and the target populations? Which components are most appropriate or most likely to be supported by the teens and their local community? What type of individuals should be involved in program implementation to secure a reasonably high participation over time? What is the appropriate mixture of punitive and positive approaches that should be employed?

Fourth, how long should, or can, the intervention last? What is the appropriate developmental stage to begin the intervention? Can occasional boosters maintain initial effects, or is long-term, continuous involvement necessary?

Finally, how should the intervention be evaluated? A management information system is basic, and for really promising approaches a rigorous evaluation may be warranted as well.

While considering such questions, providers need to remember that the U.S. population is highly heterogeneous. Different programs may appropriately emphasize different issues and approaches, especially as they focus on different populations and age groups. Policy makers and program planners need to acknowledge that the origins of adolescent sexual behavior accumulate over the course of life and reflect the force of numerous influences that pose costs and benefits to the adolescent in the short term and the long term. We should develop programs that recognize this complex reality.

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