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Problem Behavior Theory

A Half-Century of Research on Adolescent Behavior and Development

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A strong, overly zealous commitment to one's theory is important to scientific advancement.

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Part I

Introduction *It all started in 1958.* An unexpected opportunity presented itself to become involved in a large-scale community study of an important social problem—alcohol abuse—in a marginalized group in American society, Native Americans. This chapter sketches the successive phases, from that point to the present, of the systematic development of Problem Behavior Theory, a theory increasingly employed in research on adolescent risk behavior by scholars in the USA and abroad. In a certain sense, the “biography” of that theory is the autobiography of my half-century of research and writing about the developmental science of adolescence.

In the time since my PhD in Clinical Psychology from Ohio State University in 1951, I had been teaching, doing clinical training, and conducting research studies with both college sophomores and laboratory rats at the University of Colorado. The reach of those activities was limited, and I was feeling disaffected about the current state of psychology and dispirited about the significance of my own classroom and animal studies. Psychology as a scientific discipline in the early 1950s was still struggling with the arid legacy of behaviorism which had banished subjectivity and meaning from consideration, while clinical work suffered from the general absence of socially relevant theory, relying instead on outmoded trait approaches or derivations from the formulations of psychoanalysis, both largely insensitive to the influence of the societal context on individual development and adaptation. Getting involved in the large-scale community study seemed a promising avenue to re-invigorate my scientific activity, to enlarge my conceptual perspective beyond the discipline of psychology

alone, to make my research more socially relevant, and to be able to focus on complex social behavior of societal significance. I decided to pursue the opportunity, and I helped write a grant application to the National Institute of Mental Health (NIMH) that was successful: 5 years of support and \$300,000—large for that time. It was in designing and carrying out that research that what was to become Problem Behavior Theory was initially conceptualized and subjected to empirical scrutiny.

My alienation from conventional, discipline-focused, behavioral research had been growing ever since graduate school, fueled in part by an enriching involvement at Ohio State with Julian B. Rotter and his Social Learning Theory (Rotter, 1954) with its cognitive-social concepts of expectations and values and its contextual focus on the *psychological* situation. After joining the faculty at Colorado, I found myself challenging the behaviorist philosophy of science still dominating psychology, and I published several pieces critical of that perspective (e.g., Jessor, 1956, 1958). Along with colleagues, I also helped organize a symposium at Colorado on “Contemporary approaches to cognition” (Gruber, Hammond, & Jessor, 1957), one of the earliest volumes contributing to the so-called “cognitive revolution” in psychology which was just beginning to replace the behaviorist paradigm. But I had not yet been able to undertake the kind of research that would enable me to implement an alternative approach to inquiry about complex, human, social action; that was the opportunity that materialized with the 1958 grant award from NIMH. We were funded to carry out what came to be called “The Tri-Ethnic Study,” and along with a team of collaborators that included Lee Jessor, a developmental psychologist, Ted Graves, an anthropologist, and Bob Hanson, a sociologist, we published our findings 10 years later in the volume *Society, personality, and deviant behavior: A study of a tri-ethnic community* (Jessor, Graves, Hanson, & Jessor, S. L., 1968). The social-psychological formulation of Problem Behavior Theory was first elaborated in that volume.

It seemed clear to me at the outset, in considering the opportunity provided by the NIMH grant award to undertake

an alternative approach to social inquiry, that there would be a need to develop a coherent social-psychological theory, one that was problem-rather than discipline-focused (Kurt Lewin had long argued that basic research could, indeed, be accomplished in the context of studying applied problems). The theory would need to be multi-disciplinary, engage both person and environment, incorporate the perceived or phenomenal environment as well, and be attentive to the functions and goals of socially learned behavior. An ambitious and daunting agenda for a young scholar, to say the least!

In hindsight, I can think of three other important influences that helped to shape that agenda, beyond my felt disaffection with conventional psychological inquiry. First, I had been invited to spend the summer of 1954 as a member of a Social Science Research Council Interdisciplinary Summer Seminar on the topic of "occupational choice," along with two labor economists, two sociologists, and one other psychologist. The intense daily interaction across those summer months with colleagues from different disciplines—all of us intent on bringing understanding to such a complex, life-course process—taught me not only how to think beyond disciplinary boundaries, but the value and illumination of doing so. It had also provided me with the experience, for the first time, of delineating an interdisciplinary conceptual framework that incorporated, in logical fashion, constructs from the three disciplines involved. We published an integrative paper from that summer's work: "Occupational choice: A conceptual framework," (Blau, Gustad, Jessor, Parnes, & Wilcock, 1956).

A second major influence during the years leading up to the 1958 NIMH grant award was the formal establishment, in 1957, of the Institute of Behavioral Science on the University of Colorado campus, with participation of faculty and graduate students from multiple social science departments—anthropology, economics, political science, psychology, and sociology. Its establishment was the outcome of a growing recognition on the campus not only of the limitations of disciplinary research on human problems but of the explanatory benefits of transcending disciplinary boundaries. Having been an active participant in the deliberations and organizational planning that led up to our founding of the Institute, I was again exposed to the demands of interdisciplinary thinking and engaged again in cross-disciplinary interaction.

The third influence came from an enlarged understanding of the critical role of *theory* in guiding the research process and interpreting its findings. In my own field of personality research, much of measurement was employed opportunistically, relying on available instruments usually derived from popular views of personality variation, e.g., measures of introversion-extraversion. With the emergence, however, of attention to the requirements of "construct validity" (Cronbach & Meehl, 1955), the explanatory importance of deriving measures from theory,

measures that represented the logical properties of the constructs they were intended to assess, became salient. A critique of the widely used Taylor Anxiety Scale, challenging its lack of construct validity (Jessor & Hammond, 1957), had required extensive exploration of the nature of theory in the philosophy of science literature and of the role that an explicit nomological network plays in measurement and explanation. That experience, coupled with my earlier involvement in Rotter's theory-building efforts while I was still a graduate student at Ohio State, and my later participation in developing the occupational choice conceptual framework, all combined to reinforce an enduring commitment to engaging theory in social inquiry.

Together, these influences resulted in what I would now recognize as a "developmental readiness," after 7 years of conventional research, to undertake the kind of challenge that the Tri-Ethnic Study presented, and to make a "developmental transition" to what seemed to me then to be a new, socially meaningful, and conceptually more comprehensive kind of research. It turned out to be a life- and career-changing transition that, I'm happy to say, is still reverberating.

Constructing Problem Behavior Theory for "The Tri-Ethnic Study": The Initial Formulation

Although the original concern of NIMH was with understanding Native American alcohol abuse, it was the case that the rural community in southern Colorado in which the research was to be carried out was actually tri-ethnic in composition, made up not only of Native Americans, but of historically long-settled Hispanic residents, and of Whites or, as they were called then, "Anglos." The possibility of designing a *comparative* study of the three ethnic groups living in the same small community, rather than focusing solely on the Native American population, was methodologically attractive: It could make clear whether there were factors influencing Native American drinking behavior that were, indeed, unique to them or shared by the other two groups. Further, although the concern of NIMH was with excessive alcohol use, it was quite obvious that alcohol abuse was generally associated with a range of other normative transgressions, some of which, upon analysis, were oriented to similar goals or served functions similar to those that drinking behavior served, and which might, therefore, have similar determinants. Thus, it seemed theoretically important to cast a wide measurement net that assessed other problem behaviors, e.g., crime and violence, in addition to drinking, and—for construct validity purposes—that also assessed conforming or conventional behaviors, like church attendance and, for adolescents, school achievement and school club involvement.

The primary task confronted was to conceptualize the social environment and the person in terms that implicated each other and that were, at the same time, relevant to variation in problem behavior. That is, the task was to construct what Merton (1957) had termed a

“theory of the middle range,” a theory relevant to a circumscribed domain of social action—in this case, problem behavior—and that can guide empirical inquiry, rather than a “grand” theory of the sort that had, in the past, characterized so much of sociology (e.g., Parsons, 1937) and psychology (e.g., Hull, 1943; Skinner, 1938).

Conceptualizing the Social Environment Extensive exploration of the sociological and criminological literature, on the one hand, and intensive ethnographic experience in the tri-ethnic community, on the other, led to the conceptual differentiation of the social environment into three major structures of societal influence on the likelihood of occurrence of problem behavior—an *opportunity structure*, a *normative structure*, and a *social control structure*—with variables in each structure having directional implications for the occurrence/non-occurrence of problem behavior. Limited access to societally valued goals in the opportunity structure was posited to constitute *instigation or pressure* to engage in illegitimate means, i.e., in deviant or problem behavior, in order to achieve those goals. Greater exposure to dissensus in the normative structure—lack of agreement on appropriate ways of behaving, i.e., anomie—was posited to constitute *low normative control* against engaging in problem behavior; and greater access to engaging in problem behavior in the social control structure was posited to constitute *attenuated social control* against problem behavior. The balance of instigation and controls at any given location in society was hypothesized to determine the *rates or prevalence* of problem behavior at that location. From this theoretical perspective, differences in problem behavior among the three ethnic groups in the community would be due to differences in their positions in those three social environment structures. The indebtedness of this social environment formulation to the seminal contributions of Merton’s concept of “anomie”

(1957) and Cloward and Ohlin’s notion of “differential access to illegitimate means” (1960) is apparent and was gratefully acknowledged.

Conceptualizing the Person Although the social environment formulation could provide a grasp on the social determinants of between-group differences in levels or rates of problem behavior, it could not provide an account of the *intra*-group variation that exists at every social location; in order to achieve the latter, an *individual-level* account, a formulation about *persons*, was required. For conceptualizing person-level influences on the likelihood of occurrence of problem behavior, we sought structures of cognitive-social variables that could be seen as logically related to the social environment structures, i.e., as their conceptual analogues at the individual level. The value and expectancy concepts in Rotter’s Social Learning Theory appeared to be apposite; “value-expectancy disjunction” at the person level was seen as analogous to limited access to societally valued goals in the opportunity structure and constituted, therefore, a *perceived opportunity structure* in the person. In the same vein, cognitive-social variables, such as “belief in internal versus external control,” and “alienation,” constituted a *personal belief structure*, analogous to the normative structure at the social environment level. Finally, variables like “attitudinal intolerance of deviance” constituted a *personal control structure* to serve, at the person level, as an analogue of the social control structure in the social environment.

The resultant of these conceptualizations was a sociocultural environment system of structures of variables relevant to problem behavior and a personality system of structures of variables relevant to problem behavior that, together, could account for *between-group variation* as well as *within-group variation* in problem behavior. The initial conceptual framework of Problem Behavior Theory for the Tri-Ethnic Study is presented in Figure 23.1 (Jessor et al., 1968, p. 132).

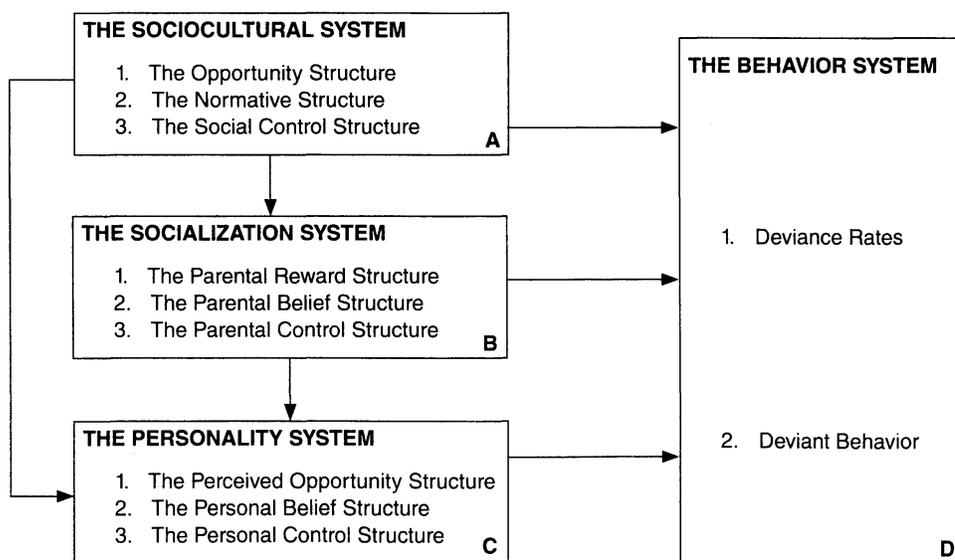


FIGURE 23.1 The over-all social-psychological framework for the study of deviance (Jessor et al., 1968, p. 132).

Collecting the Tri-Ethnic Study Data Interview and questionnaire measures of each of those variables were developed from the logic of their properties, i.e., from a construct validity perspective, and they were then employed in three converging studies carried out in the community, all testing the theory: (1) a stratified, random household interview survey of the adults in the three ethnic groups in the community—the Community Survey Study; (2) an in-school questionnaire study of all the adolescent students attending the community high school—the High School Study; and (3) an interview study of a random sub-sample of the parents of the high-school students who had participated in the questionnaire study—the Socialization Study. Our aim in mounting three converging studies on independent samples was to be able to minimize inferential ambiguity and to make a more compelling test, in an actual, complex field setting, of our social-psychological theory of problem behavior.

That the theory was an effective guide for research was evident in the consonant findings from all three studies. Theoretical predictors from both the sociocultural system and the personality system, taken together, yielded a substantial account of problem behavior variation. Those findings held across the three ethnic groups and across gender, as well. Overall, results were as theoretically expected, and they provided strong encouragement for our conceptual labors.

Revising Problem Behavior Theory for "The Socialization of Problem Behavior in Youth Study": The Intermediate Formulation The publication in 1968 of *Society, Personality, and Deviant Behavior: A Study of a Tri-Ethnic Community*, reported the first phase of the development of Problem Behavior Theory. My responsibility for that long-drawn-out enterprise definitively shaped the contours of my academic scholarship from that time forward. The 10 years of collaborative, interdisciplinary effort had been successful, the theory had been shown to be useful, the findings were illuminating, and the volume was well-received and, indeed, continues to be cited more than four decades later. An institutional outcome of the Tri-Ethnic research effort was the establishment, in 1966, in our Institute of Behavioral Science, of the interdisciplinary Research Program on Problem Behavior of which I became the founding director.

Despite its many strengths, however, particularly the conceptual mapping of both the social environment and the person in analogous terms relevant to problem behavior variation, and the theoretical coherence of the findings of its three converging studies, there was a fundamental shortcoming to the Tri-Ethnic work, namely, *it was cross-sectional in design*. The absence of time-extended data precluded inferences about causal direction or impact; remedying that limitation

would require undertaking social inquiry that was *longitudinal* in design and that permitted the following of lives across extended and developmentally significant periods of the life course. An additional shortcoming was that, in assessing adolescents already in high school, it had elided the earlier adolescent life stage, a stage in which significant transitions occur or are prepared for. What seemed essential for a fuller grasp on adolescence was theory-guided longitudinal research that started earlier in the life course. A focus on the adolescent life stage and on adolescent behavior and development seemed the natural direction to pursue for the next stage of inquiry and for the further development of Problem Behavior Theory.

Even before the Tri-Ethnic book reached publication, however, a 1965–66 NIMH fellowship award enabled me to spend a full year learning about longitudinal research at the Harvard–Florence Research Project in Firenze, Italy, a unit that had been following three cohorts of boys since their early adolescence. The families of the boys all had their origin in southern Italy or Sicily, but the families of one cohort had migrated to Rome, the families of the second cohort had emigrated to Boston, and the families of the third cohort had remained in place. The year was extremely valuable for gaining a better understanding of how to follow young lives; it also provided an opportunity to interact with thoughtful developmental colleagues like Klaus Riegel and Douglas Heath, also resident that year at the Project, and it permitted me to carry out an interesting, cross-national, comparative study of drinking behavior in the three cohorts using selected psychosocial and behavior measures from Problem Behavior Theory (Jessor, Young, Young, & Tesi, 1970).

Armed with this experience, and in close collaboration with Lee Jessor, we began to plan a new longitudinal project that, while building on the accomplishments of the Tri-Ethnic Study, would revise and extend the theory to focus now on the behavior and development of young people during the entire adolescent stage of the life course. Two complementary, longitudinal studies of adolescents were designed, one beginning with middle-school adolescents, to be followed over four successive years (called the High School Study), and one beginning with college freshmen also to be followed over four successive years (called the College Study). Together, the two 4-year studies would span an age range from about 12 to 22, i.e., from early adolescence to late adolescence/early adulthood.

The cohort-sequential design for the middle schoolers involved lengthy, theory-derived questionnaires administered in school to initial samples of 7th-, 8th-, and 9th-grade students in the spring of each of the 4 years of the study, 1969–72, at the end of which they would be in 10th, 11th, and 12th grades, respectively. The simple longitudinal design used with the college freshmen also involved lengthy questionnaires

administered in each of their four successive college years, 1970–73, at the end of which most would be in their senior year of college. Since this research took place at the end of the turbulent sixties and into the turmoil of the early seventies, the questionnaires included extensive sections on a variety of adolescent problem behaviors, including marijuana use, other, so-called “hard,” drug use, alcohol use, delinquency, and for the first time, sexual activity, and also participation in militant protests; it also assessed involvement in a variety of conventional or pro-social behaviors, including academic effort and religious activity. The High School Study and the College Study were designed to permit testing Problem Behavior Theory cross-sectionally and longitudinally, and at earlier and later adolescent life stages. Unlike the tri-ethnic community, the setting for this proposed longitudinal study was a southwestern, largely White, middle-class, university community and its surrounding small towns, with only modest ethnic variation.

An application to NIMH in 1968 for support of a longitudinal project entitled, “The Socialization of Problem Behavior in Youth,” was successful and, with later sponsorship by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), yielded 7 years of funding. With the initiation of this new study, the second phase of the development of Problem Behavior Theory began. Nine years later, we published its findings in the volume *Problem behavior and psychosocial development: A longitudinal study of youth* (R. Jessor & S.L. Jessor, 1977).

Conceptualizing the Perceived Environment As with the Tri-Ethnic Study, the challenge was again to construct a theory of both the social environment and the person that had logical implications for the occurrence of, and intensity of involvement in, problem behavior. Given the relatively homogeneous nature of the new research community in terms of socio-economic status and ethnicity, and given that the focus was to be on adolescents, it seemed most informative in this study to explore and articulate the *perceived* environment rather than the social structural environment, as had already been done successfully in the Tri-Ethnic Study. The perceived environment is the environment as the adolescent sees it, the social environment that has meaning for the young person, an environment more proximal to action than the so-called “objective,” social structural environment, and one that is consonant with such widely used concepts as “definitions of the situation” in sociology (Thomas, 1928) and “life space” (Lewin, 1935), “meaningful environment” (Rotter, 1954), and “phenomenal field” (Rogers, 1959) in psychology (for more on the perceived environment, see R. Jessor & S.L. Jessor, 1973). In this study, the social structural environment was dealt with in the more traditional way, i.e., demographically rather than conceptually, with several

indicators of socioeconomic status and family structure employed largely as analytic controls.

The perceived environment, then, is the environment the adolescent—placed by the questionnaire in the role of quasi-ethnographer—perceives about parents and friends and peers and teachers, their support and controls and influence, and their acceptance/non-acceptance of problem behavior. It was differentiated into a *proximal structure*, with variables that directly implicate problem behaviors, e.g., having friends who model problem behavior, and a *distal structure*, with variables whose link to problem behavior is indirect and follows only from the logic of the theory, e.g., parental support. Although proximal variables generally relate more strongly to problem behavior outcomes, such relationships are obvious and less interesting theoretically than the relations of distal variables which derive from and can strengthen theory.

Conceptualizing the Person The personality system for this project was delineated in essentially the same way as it had been for the Tri-Ethnic Study, with three structures of cognitive-social variables: one, the *motivational–instigation structure*, again mapped instigation or pressure to engage in problem behavior; and two, the *personal belief structure* and the *personal control structure*, again mapped controls against engaging in problem behavior. The measures employed were largely adapted from those devised for the earlier Tri-Ethnic Study, except for several new ones, such as a measure of social criticism, which was relevant to the new concern with militant protest behavior.

Shown in Figure 23.2 (from R. Jessor & S.L. Jessor, 1977, p. 38), the conceptual framework encompasses both an environment system and a personality system, as it did in the Tri-Ethnic Study, as well as a comprehensive behavior system, the latter with both a *problem behavior structure* and a *conventional behavior structure*. (As the figure shows, and as was the case with the Tri-Ethnic Study, there was also an effort to study various socialization processes as influences on adolescent behavior and development.) Despite revisions of the theory, the basic Problem Behavior Theory hypothesis remained the same: *Variation in the personality system and variation in the perceived environment system should each account for variation in problem behavior and, taken together, should provide a stronger account than either alone.* That hypothesis was tested in the two independent studies, the High School Study and the College Study, with both the cross-sectional data collected annually over the 4 years, as well as with the 4-year longitudinal data on each adolescent or young adult participant. Overall, the findings were impressive in their support of this later version of Problem Behavior Theory, the so-called “classical” version, published in the 1977 volume (for additional summary descriptions, see Costa, 2008; Donovan, 2005). In the

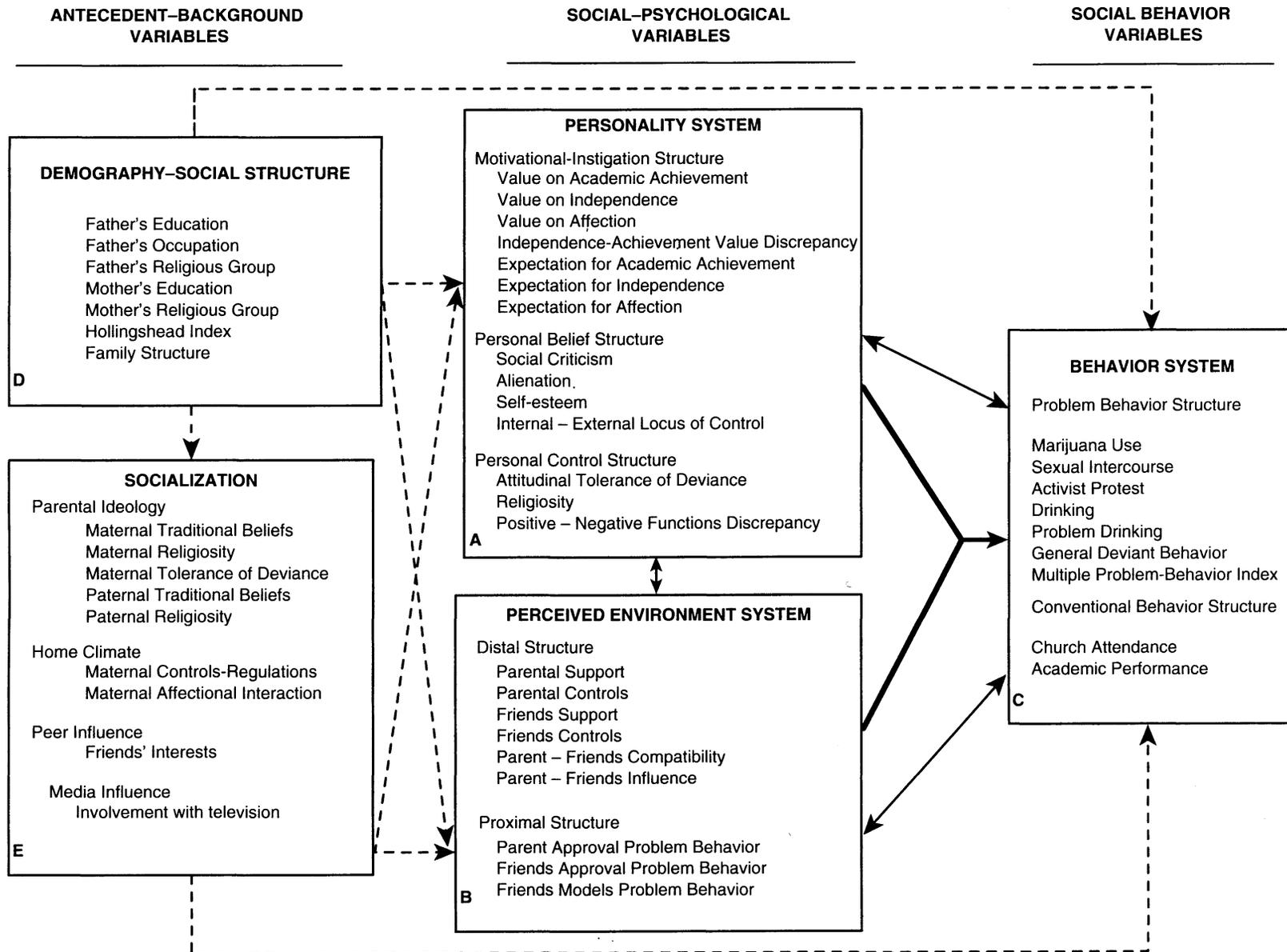


FIGURE 23.2 The conceptual structure of Problem Behavior Theory (R. Jessor, & S.L. Jessor, 1977, p. 38).

cross-sectional analyses, the theoretical account of variance in problem behavior was substantial, as much as 50% for some of the problem behaviors; in addition, the personality and perceived environment predictors were inversely related to the conventional or pro-social behaviors, demonstrating discriminant validity; and finally, the findings, though based on local samples in a particular local setting, were supported by a national sample survey of 13,000 high-school youth carried out about the same time that employed a number of our Problem Behavior Theory measures (Donovan & Jessor, 1978; Jessor, Chase, & Donovan, 1980; Rachal, Williams, & Brehm, 1975). From the cross-sectional findings alone, it was clear that Problem Behavior Theory provided a useful grasp on variation in adolescent problem behavior in both the High School Study and the College Study.

The research also generated several important problem behavior concepts that have since entered the literature. The concept of *problem behavior proneness* was employed as a theoretical summary term for the likelihood of engaging in problem behaviors, based on the set of personality variables and the set of perceived environment variables that, theoretically, are their predictors. It became possible to think of *personality proneness*, and *perceived environment proneness*, as well as overall *psychosocial proneness*, based on both systems of predictors taken together. Another important concept that emerged from this inquiry was the *problem behavior syndrome* in adolescence. The research provided consistent evidence that there was co-variation or co-occurrence among very diverse problem behaviors, i.e., that various problem behaviors were inter-related and tended often to have similar determinants and to fulfill similar functions. The notion of a *syndrome* challenged the allocation to different Federal agencies of responsibility for the separate problem behaviors—thereby partitioning the “wholeness” or integrity of adolescent behavioral individuality—and it highlighted the parochialism of the research tradition that focused on a single or isolated adolescent problem behavior alone. The concept of a problem behavior syndrome has since generated an outpouring of adolescent research that is still underway; a recent review for the National Academies of Science of the cumulated research on covariance of problem behaviors in adolescence musters persuasive support for the syndrome concept (Monahan & Hawkins, 2012).

While the cross-sectional findings were gratifyingly consonant with those of the Tri-Ethnic Study of high-school youth, the overriding concern of this later longitudinal inquiry was to examine the reach of the theory in accounting for *developmental change* across adolescence and into early adulthood. Toward that end, both descriptive and predictive analyses were undertaken with the longitudinal data. For the descriptive analyses, longitudinal “growth curves” were plotted across the 4 years of data,

not only for the various problem behaviors, but also for their personality and perceived environment predictors. Beyond intrinsic interest in the developmental change that the curves documented on those attributes across four data points, they also revealed a *theoretical consonance of developmental change* between the behaviors and their predictors over time, constituting an initial, although indirect, test of the developmental usefulness of Problem Behavior Theory. For example, in the High School Study, value on academic achievement declined significantly over the 4 years of measurement, value on independence increased, and intolerance of deviance decreased among the personality system predictors; among the perceived environment system predictors, parental controls decreased, while friends models for drinking increased. Each of these directions of developmental change is theoretically predictive of a developmental *increase* in problem behavior over the 4 years of measurement, and, indeed, that was the case for marijuana involvement and for delinquent behavior, among others. Further, they are consonant with a *decrease* in conventional behavior which was the case for the measure of church attendance. This theoretical consonance of parallel developmental changes in adolescence of both predictor and criterion measures was a novel developmental finding, one that was supportive, indirectly, of Problem Behavior Theory.

A more direct test of the usefulness of the theory in accounting for developmental change in adolescence entailed predicting differences in time of onset of problem behaviors hitherto never engaged in. These analyses generated another important new concept, namely, the concept of “*transition proneness*.” It was evident that, for many young people, engaging in problem behaviors such as drinking or smoking or having sex was a way of lodging a claim on a more mature status, i.e., of making a developmental transition. Since problem behaviors such as drinking or smoking or sexual intercourse are actually *age-graded behaviors*—behaviors that, while normatively proscribed for younger ages, are permitted or even prescribed for older ages, engaging in them for the first time can be a way of transgressing a norm, in this case an age norm, and thereby demonstrating that one is no longer a “kid.” Problem Behavior Theory is designed to account for normative transgressions; that account should also apply to age norms, and the concept of “problem behavior proneness” therefore translates into or maps onto the developmental concept of “transition proneness,” the likelihood of engaging in a transition- marking behavior. A number of tests of the notion of transition proneness were carried out in the High School Study where there were adequate samples of adolescents who had not yet initiated the problem behavior. What they demonstrated was the usefulness of the Problem Behavior Theory concept of transition proneness for predicting earlier versus later transition in regard to the onset of drinking, of marijuana use, and

of becoming a non-virgin (Jessor, 1976; Jessor, 1987a; R. Jessor, Costa, S.L. Jessor, & Donovan, 1983; R. Jessor & S.L. Jessor, 1975; R. Jessor, S.L. Jessor, & Collins, 1972; S.L. Jessor & R. Jessor, 1975).

Overall, the longitudinal findings provided strong support for the developmental relevance of Problem Behavior Theory. They illuminated the developmental changes in those psychosocial attributes associated with, predictive of, and consequential upon the onset of transition behavior.

Extending Problem Behavior Theory Beyond Adolescence: "The Young Adult Follow-Up Study" When the findings from the "Socialization of Problem Behavior in Youth Study" were published in the 1977 volume *Problem behavior and psychosocial development*, the second major phase in the evolution of Problem Behavior Theory came to a close. The High School Study and College Study participants, by the end of the longitudinal study in 1972 or 1973, respectively, had reached the ages of 16, 17, and 18 for the former, and 22 for the latter. To our great good fortune, the study of those same adolescents and young adults was to continue well into adulthood and to provide us with a unique opportunity to examine the applicability of Problem Behavior Theory to that later stage in the life course—youth adulthood. With funding from NIAAA for "The Young Adult Follow-Up Study," we were able to launch a two-wave follow-up of our participants in 1979 and 1981; by 1981, the High School Study youth had reached the ages of 25, 26, and 27, and the College Study youth had reached the age of 30, all having navigated the transition to adulthood. The findings from this longitudinal inquiry about problem behavior in adulthood were published in the volume *Beyond adolescence: Problem behavior and young adult development* (Jessor, Donovan, & Costa, 1991), the third volume in the evolution and appraisal of Problem Behavior Theory.

In the interval since the fourth wave of data had been collected in 1972 and 1973, the longitudinal participants in our "Socialization of Problem Behavior in Youth Study" had scattered across the state, the nation, and even abroad. Locating them for follow-up was the initial challenge for the "Young Adult Follow-Up Study," a challenge that was met with extraordinary success: Almost all were located despite the significant passage of time, and fully 94% of both the High School longitudinal sample and the College longitudinal sample resumed their participation. Nearly all were out of school, most of the men and over half of the women were employed full-time, over half were married or in a committed relationship, and almost a third were raising families—evidence of the pervasive occupancy of the various roles of young adulthood. The two waves of data collected in 1979 and 1981 enabled examination

of the usefulness of Problem Behavior Theory in accounting for variation in problem behavior *within* young adulthood, and they also enabled exploration of developmental change *between* adolescence and this later time in the life course.

Several important contributions to developmental science emerged from this extended appraisal of Problem Behavior Theory. First, variance accounted for in problem behavior in young adulthood was as substantial as it was in adolescence—mostly better than 40%, but with some exceptions for particular problem behaviors—in both the 1979 and the 1981 data waves, providing thus another demonstration of developmental generality of the theory, i.e., its invariance across life stages. Second, the findings were similar to those obtained in adolescence in regard to the existence of a problem behavior syndrome, now evident in young adulthood, as well. A variety of analyses showed covariation across frequency of drunkenness, frequency of marijuana use, use of other illicit drugs, general deviant behavior, and cigarette smoking, and also showing that a single underlying factor could account for the observed correlations among those behaviors (Donovan & Jessor, 1985). Third, variation in problem behavior in 1981 was shown to be predictable from psychosocial proneness as far back as 1972/73, i.e., over quite a long developmental period; theoretical precursors in adolescence were able to forecast problem behavior in young adulthood. Fourth, with regard to developmental change in the theoretical predictors and the problem behaviors from adolescence into young adulthood, there is clear evidence of substantial *continuity* in change (Jessor, 1983); stability coefficients between Wave 1 and Wave 6 and between Wave 5 and Wave 6 were highly significant.

Two other important findings about youth development emerged from the Young Adult Follow-Up Study. Despite the observed stability of developmental change, the actual *direction* of change between the adolescent life stage and that of young adulthood "was unmistakably in the direction of greater conventional-ity" (Jessor et al., 1991, p. 276). This was especially noteworthy given that, for several of the variables, it was an actual reversal of the direction of developmental change observed *within* adolescence when it was toward greater *unconventionality*. Finally, we found that there was no evidence of a "spillover" effect, that is, that involvement in problem behavior in adolescence had compromised young adult outcomes in any other life areas—work, family, health, etc., or that it had "mortgaged the future" of these middle-class youth in any way.

These young adult findings added substantially to our understanding of the implications of the adolescent life stage for later development. They also strengthened our conviction about the developmental usefulness of Problem Behavior Theory in this later stage of the life course.

Part II

Expanding Problem Behavior Theory Beyond Problem Behavior In carrying out three, large-scale studies of adolescent problem behavior, both cross-sectional and longitudinal, our primary objective had been to innovate a conceptual framework—Problem Behavior Theory—and to establish its usefulness for advancing understanding of the adolescent life stage and the role played by problem behavior in adolescent adaptation and development. The three successive volumes that published the findings from those studies represented a cumulative corpus of work, over several decades, in support of that objective.

But there had been other objectives along the way, as well. A second objective had been to help promote an alternative style of social inquiry: a style that was problem-focused; that could enable strong inferences to be drawn from field or non-experimental studies; that was more comprehensive than what was generally seen in the literature, encompassing both person and environment and engaging a wide range of behaviors; and a style that transcended discipline-focused efforts and reflected what might best be called a *developmental behavioral science* approach (Jessor, 1993), an approach that is inherently interdisciplinary. Related to that objective is the fact that, in 1980, I was appointed director of the Institute of Behavioral Science, a position I held for over two decades, with responsibilities for overseeing a fairly large organized research enterprise with programs on population, the environment, political and economic change, and problem behavior (which I continued to direct, as well). That role required engagement with problem-based, interdisciplinary inquiry across a broad spectrum of the social and behavioral sciences, and it generated an even stronger commitment on my part to promoting developmental behavioral science as an approach to research.

Toward that end, and to celebrate the 25th anniversary of the Institute, I organized in the mid-1980s a 2-year-long series of distinguished lectures on the current and future status of the various social science disciplines, and on such social problems as health, peace, and the environment. Beyond editing the volume *Perspectives on behavioral science: The Colorado lectures* (Jessor, 1991b), I tried in the final chapter, “Behavioral science: An emerging paradigm for social inquiry?” (Jessor, 1991a) to take stock across the lectures of whether a new trans-disciplinary paradigm was, indeed, emerging. Unhappily, I had to conclude that was not the case. That conclusion was not contradicted by a richly rewarding year spent, almost a decade later in 1995–96, at the Center for Advanced Study in the Behavioral Sciences at Stanford. The hold of the disciplinary organization of social-psychological research remains tenacious even today, nearly two decades later, despite the inherent necessity of an inter-or trans-disciplinary perspective when research is problem-based; see invited editorial, “Remarks on the changing nature of inquiry” (Jessor, 2005).

And a third objective was to promote greater reliance on theory in research and measurement. The theoretical or explanatory level of analysis, the level Kurt Lewin (1951), borrowing an analogy from genetics, termed the underlying *genotypic* level, not only provides for logical or systematic explanation, but it also yields greater generality than can be expected from analyses at the descriptive or *phenotypic* levels, which are necessarily parochial. We had already documented the generality of theoretical explanation in the Tri-Ethnic Study in which the theoretical variables showed similar explanatory value across the three ethnic groups despite their varied circumstances and mean-level differences on those variables. Theoretical generality had also been documented across gender and, in the Young Adult Follow-Up Study, across the developmental stage of young adulthood.

Problem Behavior Theory and Adolescent Health By the early 1980s, Problem Behavior Theory was becoming established and, indeed, beginning to be used by others to guide their own research. Although our third volume, *Beyond adolescence*, had not yet appeared, articles from that study were already being published (e.g., Donovan & Jessor, 1985; Donovan, R. Jessor, & L. Jessor, 1983; Jessor, 1983; Jessor, Donovan, & Costa, 1986; R. Jessor & S.L. Jessor, 1984). With all that as background, the ontogeny of Problem Behavior Theory’s development entered a new phase, a phase that was characterized by an expansion of its application into additional domains of adolescent life beyond problem behavior alone.

Perhaps the most salient expansion was engagement of the theory with the domain of *adolescent health*. It had become quite clear to us over the years that many of the adolescent problem behaviors we were preoccupied with, e.g., smoking, alcohol abuse, and early or unprotected sex, could be viewed by those with a public health perspective not as normative transgressions, as we saw them, but as behaviors that compromised health, instead. It was evident, too, that even health-related behaviors that were not also problem behaviors were regulated by social and personal norms just as problem behaviors were, e.g., norms about healthy eating, appropriate exercise, or acceptable body weight, and in that regard it seemed our theory might well be apposite. An invitation by David Hamburg to participate in a conference at the Institute of Medicine served to precipitate an exploration of the applicability of Problem Behavior Theory to the domain of adolescent health (Jessor, 1978), and that led, subsequently, to preparing a chapter, “Adolescent development and behavioral health” (Jessor, 1984) for the volume *Behavioral health: A handbook of health enhancement and disease prevention*, edited by Matarazzo et al. From then on to the present day, concern for the adolescent health domain has threaded its way through our work in research and theory development and across very diverse settings in

the United States and across the globe (Costa, Jessor, & Donovan, 1989; Costa, Jessor, Donovan, & Fortenberry, 1995; Donovan, Jessor, & Costa, 1991, 1993; Jessor, 1989; Jessor, Donovan, & Costa, 1990; Jessor, Turbin, & Costa, 1998a, 2010; Turbin, Jessor, & Costa, 2000; Turbin et al., 2006). Indeed, in 2002, I established and became the first director of the Research Program on Health and Society in our Institute of Behavioral Science, a position I continue to hold today. Sustaining this engagement with adolescent health, and illuminating its complexity for me, were various opportunities I had to participate in activities that implicated that domain of inquiry. Special mention must be made of service on the Carnegie Council on Adolescent Development for nearly a decade beginning in the mid-80s, which was a richly informative experience. Membership on the National Research Council's Committee on Child Development Research and Public Policy, as well as on its panels, including one on adolescent pregnancy and childbearing and one on high-risk youth, also helped to enlarge my outlook. Involvement in various projects of the World Health Organization, including a cross-national, comparative study of alcohol abuse in Zambia, Mexico, and Scotland, and preparing a presentation, "The health of youth: A behavioral science perspective" (Jessor, 1989), for WHO's 1989 Technical Discussions on the Health of Youth, sharpened my awareness of adolescent health issues in the developing world. And serving throughout the 1980s in advisory capacities for various agencies—NIAAA, NIDA, Health and Welfare, Canada—presented the challenge of linking social research on adolescent health to social policy.

A key contribution of Problem Behavior Theory to understanding adolescent health has been to demonstrate the embeddedness of health-related behaviors in a larger explanatory network of psychosocial and behavioral variables. Our research findings established that health behaviors were part of an adolescent's way of being in the world, i.e., part of a *lifestyle*. Health-enhancing behaviors, e.g., healthy diet, regular exercise, adequate sleep, and safety precautions, were shown to inter-relate or co-vary, as was true of problem behaviors; they were also shown to relate inversely to problem behaviors; and they were shown to reflect a general orientation of psychosocial conventionality. Variation in engagement in health-enhancing behavior related not only to proximal variables, such as value on health and attitudes and beliefs about particular health behaviors, variables that directly implicate the health behaviors, but also, and a more novel theoretical finding, to *distal* variables, such as religiosity, as well. These findings added support for the perspective that health behaviors are part of a larger way of being in the world, reflecting an organized, individual-level adolescent lifestyle.

Problem Behavior Theory and the Context of Disadvantage In addition to its added concern for

adolescent health behavior, Problem Behavior Theory also expanded in the 1980s to engage more deeply and directly with adolescent development under circumstances of disadvantage and in contexts of risk, a concern tangentially explored in the early Tri-Ethnic Study. Invited in 1985 by William Bevan to join an advisory group for the MacArthur Foundation's Program on Youth at Risk for Problem Behavior, I was appointed 2 years later as director of a new MacArthur Foundation Research Network on "Successful Adolescent Development among Youth in High Risk Settings," which emerged from the advisory group's deliberations. That began a decade of intense activity by the network members, more than a dozen of the leading scholars on adolescence from psychology, sociology, pediatrics, education, and psychiatry, to try to promote understanding of the process of "making it," i.e., how it is that adolescents growing up under severe conditions of adversity, disadvantage, and even danger nevertheless manage to "succeed": to stay in school and make progress, to avoid heavy engagement in problem behavior, to keep out of trouble with the authorities, to avoid too-early pregnancy or involvement with gangs, etc.

Studies were carried out by interdisciplinary teams of network scholars in inner city poverty neighborhoods in Philadelphia, New York, Chicago, and Denver, as well as in rural Iowa, where farm families had been exposed to the severe economic decline of the 1980s farm crisis. It was a heady experience, enthused with the notion of neighborhood impact on youth development, but also sensitive to other developmental contexts, especially the family and the school, and to individual-level characteristics. An *American Psychologist* article, "Successful adolescent development among youth in high-risk settings" (Jessor, 1993) provided an overview of the network's agenda and approach. Various papers were published from this endeavor, but its main contributions were three converging volumes: *Managing to make it: Urban families and adolescent success* (Furstenberg, Cook, Eccles, & Elder, 1999); *Children of the land: Adversity and success in rural America* (Elder & Conger, 2000); and *Good kids from bad neighborhoods: Successful development in social context* (Elliott et al., 2006). The MacArthur work resulted in significant advances in understanding about adolescent development in high-risk settings, especially in helping to right the balance from a preoccupation with negative outcomes to an emphasis on resources in both person and context, and on positive and successful development. It also revealed, importantly, that there was greater variation *within* neighborhoods than between neighborhoods, and that pure neighborhood effects were, after all, only modest. The MacArthur experience led, in my own work on Problem Behavior Theory, to a related paper, "Risk and protection in successful outcomes among disadvantaged adolescents" (Jessor, Turbin, & Costa, 1998b), which demonstrated the theory's usefulness in that domain.

Part III

Reformulating Problem Behavior Theory for Explaining Adolescent Risk Behavior: The Current Framework

As the terms “risk” and “protection” in the title of that 1998 article suggest, Problem Behavior Theory had undergone something of a transformation beginning in the early 1990s. The new—and current—formulation extended the theory beyond problem behaviors alone to encompass the broader category of *risk behaviors*, all those behaviors that can compromise adolescent health and successful development. Toward that end, the theory’s predictor or explanatory variables were “translated” into the language of risk factors and protective factors. Adoption of the new formulation was influenced by several things: the accumulated experience of expanding Problem Behavior Theory to apply to the domains of health and disadvantage; discovering that the theory also had reach into hitherto unexplored domains of risk behavior such as “risky driving” (Jessor, 1987b; 1989); and an awareness of the emergence of a new and relevant sub-discipline of *behavioral epidemiology*, which relied heavily on the concept of “risk factors” and “protective factors,” factors that were congruent with many of our “instigation” and “control” theoretical predictors. The new formulation was designed to make Problem Behavior Theory more readily available to researchers in the health field and more useful for those interested in prevention/intervention, a constituency more familiar with the terminology of “risk” and “protection” than with constructs from our theory such as “problem behavior proneness.”

In what was then for me a pivotal paper, “Risk behavior in adolescence: A psychosocial framework for understanding and action” (Jessor, 1991c), I undertook to create an overarching conceptual framework that could accommodate the variety of theories seeking to account for the broad domain of adolescent risk behavior, including Problem Behavior Theory. It articulated risk factors and protective factors in five different but interrelated domains of “causal” influence: biology/genetics; the social environment; the perceived environment; personality; and behaviors (Figure 23.3). In requiring specification of both risk and protective factors in each domain, it makes apparent the comprehensiveness and the complexity that a truly exhaustive account of variation in adolescent risk behavior would require. Problem Behavior Theory constitutes one particular derivation from that larger framework.

The incorporation of the concepts of risk behavior, risk factors, and protective factors in that larger framework stimulated some effort to clarify each. First, the concept of “risk behavior,” behaviors that can have health-and life-compromising outcomes, avoids the confusion that has resulted from the pervasive employment of the term “risk-taking behavior” (with its unsupported

corollary that adolescents are, therefore, “risk-takers”). The imputation of risk “taking” is analytically gratuitous when adolescents smoke or drink or have unprotected sex or eat junk food, and use of that term has tended to side-track and even preclude more appropriate explanatory efforts. Whether the deliberate taking of risk is entailed in any of those behaviors needs to be considered as problematic, something to be investigated rather than assumed. The term “risk-taking” has been a source of serious conceptual mischief and should be abandoned—except for those behaviors actually motivated by the conscious thrill of taking the risk involved. In addition, it is also important to recognize that although risk behaviors can compromise health and development, they can also achieve goals the adolescent values, such as a sense of autonomy, or peer approval, or being seen as more mature.

With regard to the concept of “risk factors,” it is useful to differentiate the concept into risk factors for the *initiation* of a new risk behavior—its onset—and risk factors for the *intensification of involvement* in or commitment to that risk behavior, once initiated. Since so much of adolescent risk behavior is merely exploratory, the key societal concern has to be with risk factors for intense or committed or chronic involvement with them. With regard to “protective factors,” conceptually their *protective* role operates *only when risk is present*. Importantly, in the absence of risk, protective factors play a *promotive* role conceptually, i.e., they provide support for positive, pro-social behavior and development. In addition, protective factors buffer or moderate the impact of exposure to risk factors, i.e., they interact with risk factors to reduce the likelihood of occurrence of risk behavior. It was the recognition of this latter, moderator role of protective factors that led us to shift Problem Behavior Theory from the additive regression model it had always relied on, in regard to instigations and controls, to an interactive model for the risk and protection relationship.

These considerations in mind, we reorganized the theoretical predictors in Problem Behavior Theory into structures of protective factors and risk factors drawn from the “causal” domains of the perceived environment, personality, and behavior. The protective factors that promote positive, pro-social behavior and thereby decrease the likelihood of engaging in risk behavior include: *models* for positive or pro-social behavior; personal and social *controls* against engaging in risk behavior; *social supports* for positive or pro-social behavior; and actual experience with *pro-social or health-enhancing behaviors*. The risk factors that, by contrast, increase the likelihood of occurrence of risk behaviors include: *models* for engaging in risk behavior; *opportunities* for engaging in risk behavior; personal *vulnerability* to engaging in risk behavior; and actual experience with *risk behaviors*. The re-formulated Problem Behavior Theory framework used in our

Risk and Protective Factors, Risk Behaviors and Risk Outcomes

Interrelated Conceptual Domains of Risk Factors and Protective Factors

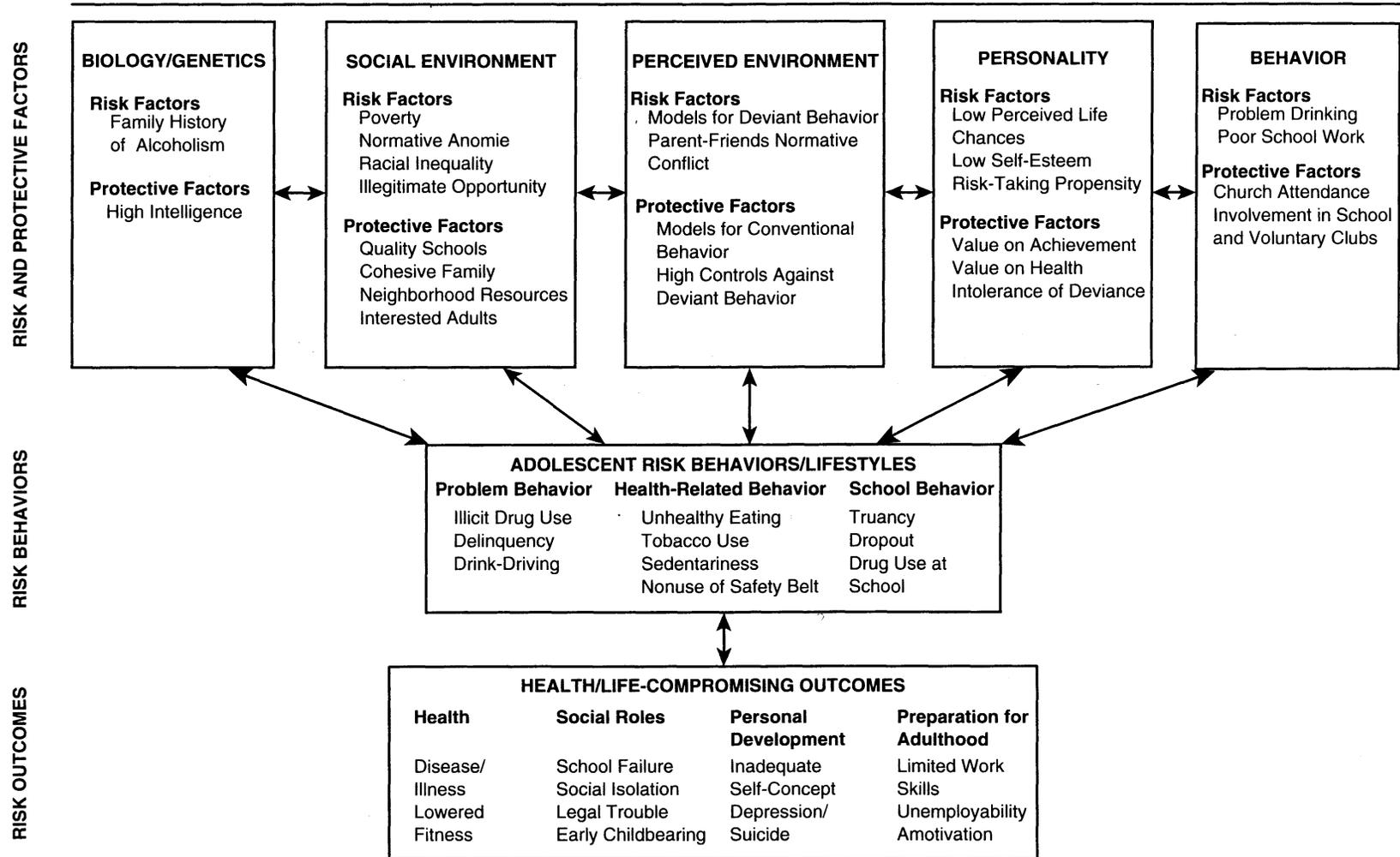


FIGURE 23.3 A conceptual framework for adolescent risk behavior (Jessor, 1991c, p. 602).

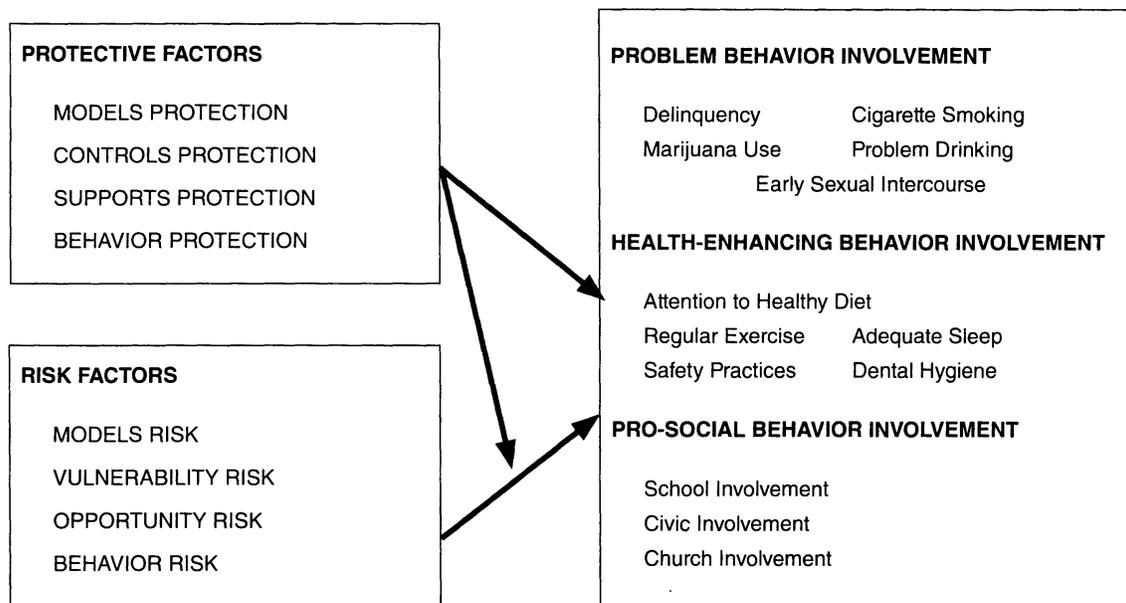


FIGURE 23.4 Problem Behavior Theory explanatory model for adolescent risk behavior.

research, in one version or another, since the mid-1990s is shown in Figure 23.4.

The framework illustrates the direct relation of protective factors and risk factors to risk behavior (the direct arrows), as well as the moderator effect of protection on the impact of exposure to risk (the indirect arrow). Both social context and personal variation continue to be represented in the framework. For example, Models Protection refers to perceived models in the adolescent's social environment—family, peers, school, neighborhood—for positive, pro-social, and health-enhancing behavior; Controls Protection refers to informal social controls from peers, family, neighbors, and teachers, as well as personal controls against risk behavior; Vulnerability Risk refers to low self-esteem, low perceived life-chances, and depression at the person-level, all enhancing the likelihood of engaging in risk behavior; etc. The particular variables from Problem Behavior Theory measured in each category of protection and risk can be seen in our various publications (Costa, Jessor, & Turbin, 1999, 2007; Costa et al., 2005; Jessor, Costa, Krueger, & Turbin, 2006; Jessor et al., 1995; Jessor et al., 1998a, b; Jessor et al., 2003; Jessor et al., 2010; Ndugwa et al., 2010; Turbin et al., 2006).

In its latest phase of development, then, the formulation of Problem Behavior Theory has expanded its reach beyond problem behavior to the larger domain of risk behavior in general, and it has brought social-psychological theory to bear in fields that had been largely descriptive, e. g., adolescent health and behavioral epidemiology, by translating its theoretical concepts into risk and protective factors.

Part IV

Problem Behavior Theory in the 21st Century: Establishing Cross-National Generality The past decade has seen the burgeoning of cross-national applications of Problem Behavior Theory in settings across the globe. The implications that these cross-national efforts have for the generality of findings when research is guided by theory are profound.

Our first systematic application of Problem Behavior Theory in a cross-national study had its origin in an unexpected contact from Professor Qi Dong, a distinguished developmental psychologist at Beijing Normal University, during my 1995–96 year at the Center for Advanced Study in the Behavioral Sciences at Stanford; familiar with my work, he thought it would be mutually beneficial if we could arrange a research collaboration on adolescent development. Intrigued by that possibility, and with funding a couple of years later from the Johann Jacobs Foundation, I organized an international workshop to plan a collaborative, cross-national study of adolescent health and development. The workshop brought together colleagues from Poland and Italy who were already using Problem Behavior Theory in their work, as well as Professor Qi and colleagues from China, and my research group from Colorado. Held in Italy in 1998, the workshop was successful in cementing the U.S.–China collaboration, and an application to the William T. Grant Foundation for a longitudinal research grant, “Adolescent risk behavior and development in China and the U.S.: A cross-national comparative study of risk and protection,” was funded in 2000. Our Polish colleagues were ultimately unable to participate, and

our Italian colleagues successfully carried out their own Problem Behavior Theory-guided study of Italian youth (Bonino, Cattellino, & Ciairano, 2005).

Most intriguing about the opportunity to test Problem Behavior Theory in The People's Republic of China was how pervasively different from the United States it was as a society and culture: a communist society, a society with a one-child family policy and an extremely low divorce rate, a culture of traditional respect for adults, a relatively lower prevalence of adolescent problem behavior, etc. Successful application of the theory in such a different societal context would provide compelling evidence of its generality. To insure that societal contrast, the study also included a city, Zhengzhou, in central China, which was less exposed than Beijing to Western influence. A comparative, school-based, longitudinal study of adolescent risk behavior was carried out in parallel in the two cities in China and in the city of Denver in the United States. Its findings have been reported in several U.S. publications (Costa et al., 2005; Jessor et al., 2003; Jessor et al., 2010; Turbin et al., 2006), as well as in publications in China.

Whether the analytic focus was on adolescent problem behavior, on pro-social behavior, or on health-enhancing behavior, there was strong support for the cross-national generality of the protection-risk explanatory model of Problem Behavior Theory. A substantial account of variation in risk behavior was provided by the same protective and risk factors in both countries, and for both genders, despite the large societal and cultural differences and despite differences in prevalence of the behaviors and in mean levels on the theoretical predictors. Of further importance, and as theoretically expected, protection was shown also to moderate the impact of exposure to risk in both countries. Just one important finding from this research: When the criterion was problem behavior, Controls Protection and Models Risk were the main predictors in both countries, but when the criterion was positive, that is, either pro-social or health-enhancing behavior, the important predictors shifted to Models Protection, Support Protection, and Vulnerability Risk, an entirely different pattern. Such findings attest to the value of differentiating both risk and protection and the necessity of considering such differentiation in prevention/intervention efforts.

Later, in collaboration with the African Population and Health Research Center in Nairobi, another cross-national study, with adolescents in the slums that surround the city, constituted the first application of Problem Behavior Theory in sub-Saharan Africa. In this contrasting setting from the U.S. contexts in which the theory had been developed, measures of the theory's psychosocial protective and risk factor variables again provided a substantial account of variation in adolescent problem behavior, and protection was again shown to moderate the impact of exposure to risk (Kabiru,

Beguy, Ndugwa, Zulu, & Jessor, 2012; Ndugwa et al., 2010).

Our studies in The People's Republic of China and in Kenya provided persuasive support for the cross-national applicability of Problem Behavior Theory. But the establishment of its generality by other, independent investigators makes that support even more convincing, and considerable literature has accumulated in recent years in that very regard. For example, Vazsonyi and colleagues (2008, 2010) report on their application of Problem Behavior Theory in cross-national studies, one using large, national probability samples of adolescents in Switzerland and The Republic of Georgia, and the other using convenience school samples from Hungary, the Netherlands, Slovenia, Spain, Switzerland, Taiwan, Turkey, and the United States. The former study supported the concept of a "problem behavior syndrome" in both societies, and confirmed that Problem Behavior Theory "has applicability across developmental contexts or societies" (2008, p. 562). The latter study concluded that: "The evidence appears to support great similarities in the relationships between risk and protective factors and the PBS [problem behavior syndrome] across the eight developmental contexts" (2010, p. 7). In another cross-national study, of early adolescent sexual initiation in Finland, Scotland, France, Poland, and the United States, Madkour et al. used Problem Behavior Theory as their framework; they conclude that "the fit of early adolescent sexual initiation within a PBT [Problem Behavior Theory] framework holds for multiple post-industrial national settings" (Madkour, Farhat, Halpern, Godeau, & Gabhainn, 2010, p. 397). By now, Problem Behavior Theory has been employed successfully in numerous other countries as well, ranging from Italy and the Netherlands (Ciairano, Kliewer, & Rabaglietti, 2009) to Ethiopia (Astatke, Black, & Serpell, 2000) to Iran (Aguilar-Vafaie, Roshani, Hassanabadi, Masoudian, & Afruz, 2011).

These consistent findings about the applicability of a theory devised and established in the United States to such widely differing societal and cultural contexts often startle or surprise, but as I indicated in an invited editorial, "Description versus explanation in cross-national research on adolescence," for the *Journal of Adolescent Health* when it published the 2008 Vazsonyi et al. paper, such generality is to be expected *at the theoretical level* (Jessor, 2008). Since a theory specifies underlying relations among variables, those relations should obtain in any context in which the theory can be applied—that is the nature of *explanatory* research. In considering the theoretical concept of "Support Protection," for example, its source may come from a single mother in a U.S. family or from an extended-kin group in China or from peers in the slums of Nairobi, but the theoretical relation of support protection to risk behavior should be the same in all three settings. It is this genotypic, explanatory role of theory that yields

generality across phenotypic or descriptive differences in populations and contexts. Our studies have thus far supported the generality of the theory across ethnic groups, across gender, across life stages, across historically different U.S. cohorts (Donovan et al., 1999), and across widely diverse societies.

Concluding Reflections

The Problem Behavior Theory that has evolved from this half-century of cumulative work has, it is hoped, contributed to knowledge and understanding about adolescence along the way. As was true of the prior versions, its current protection/risk formulation is predicated on fundamental social-psychological processes that underlie behavior and shape the course of development both positively and negatively: social *models*; social and personal *controls*; social *supports*; contextual *opportunity*; personal *vulnerability*; and past engagement in risk, health, and pro-social *behaviors*. Although its early focus was on problem behavior, its applications to pro-social domains, including health-enhancing behavior, have been equally illuminating. This should not really be surprising; as the criminologist, Albert Cohen, pointed out: "A theory of deviant behavior not only must account for the occurrence of deviant behavior; it must also account for its failure to occur, or conformity" (1959, p. 463). This broader scope of Problem Behavior Theory is the legacy of a long-term, developmental behavioral science approach to inquiry.

That approach insists on the joint consideration of social environment and individual-level determinants of action. The distinguished personality psychologist, Henry Murray, asserted about the time that our work began that "no theoretical system constructed on the psychological level will be adequate until it has been embraced by and intermeshed with a cultural-sociological system" (1959, p. 20). From our early engagement with the socio-cultural system in the Tri-Ethnic Study to our recent concern for articulating risk and protective factors in the social contexts of daily adolescent life, we have sought to embrace the social environment in an interdisciplinary formulation for understanding adolescent behavior and development. And in documenting the unique variance added by the social environment measures to accounts based only on individual-level variables (Costa et al., 2005; Turbin et al., 2006), our findings have exemplified interdisciplinary research.

Complementing this engagement with the social environment has been our parallel interest in understanding the phenomenal world of the adolescent. From the very outset, the Tri-Ethnic Study was informed by extensive ethnographic explorations in the community; and in the three MacArthur volumes, ethnographic findings became an essential component of those studies. Indeed, the necessity to join qualitative

with quantitative inquiry in order to achieve a deeper understanding of the impact of disadvantage on adolescent development quickly became apparent in the network, and toward that end, we organized a symposium on qualitative research that eventuated in an illuminating volume, *Ethnography and human development: Context and meaning in social inquiry* (Jessor, 1996; Jessor, Colby, & Shweder, 1996). It has been dismaying to continue to confront the intractable opposition of post-modernism in sociology and anthropology to quantitative work and the equally obstinate perspective of some quantitative social scientists about qualitative research; the volume bravely sought to overcome that polarity. We should be long past awarding honorific status to particular methods; methods serve as handmaidens to theory and problems.

As I look back now over more than five decades of research on adolescence, I'm most aware of how much remains to be accomplished. As successful as Problem Behavior Theory may have been—its social-psychological variables accounting in some cases for as much as half the variance in risk behavior—it is sobering to realize that fully half the variance remains unexplained; therein lies the challenge for the developmental science of adolescence in future years. One promising avenue to pursue in response to that challenge is engaging additional disciplines in the explanatory scheme. In this regard, it has been salutary to see the burgeoning attention to neuroscience and genetics in contemporary adolescent research. A caveat about following that course is in order, however; findings from those disciplines are too often considered as somehow more fundamental and more causal than findings at the social-psychological level, a kind of reductionist fallacy that can seriously skew scientific progress. Recent explanations of risk behavior based on the so-called "immature adolescent brain" or references to "addictive" behavior as a "brain disease"—especially in the absence of evidence about linking mechanisms—are two examples. In a long-ago article, "The problem of reductionism in psychology" (Jessor, 1958), I tried to argue against this tendency; more recently, Miller (2010) has addressed the issue in greater detail.

Another promising direction to pursue is gaining a deeper understanding of the social context of adolescent life. It is now clear to everyone that the standard demographic attributes—the so-called "social addresses"—are too distal to be helpful. Developing a more sensitive and differentiated theoretical language to describe the contexts of adolescent daily life, one that could better capture the learnings and rewards and opportunities and sanctions that exist in those settings, should yield a stronger grasp on the role of the social environment than we have yet achieved. Finally, probing more deeply the adolescent's phenomenology, getting at the quiddities of adolescent subjectivity, could certainly enrich understanding.

There is, of course, a sense of satisfaction in looking back at the contribution that Problem Behavior Theory has made to a developmental science of adolescence; at the same time, there is a continuing sense of excitement over addressing the challenges that remain for that still-emerging science.

Behind all scientific studies there is not only the drive to understand but the compulsion to persuade.

William Bevan

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THE DEVELOPMENTAL SCIENCE OF ADOLESCENCE

History Through Autobiography

Edited by

Richard M. Lerner, Anne C. Petersen,
Rainer K. Silbereisen, and Jeanne Brooks-Gunn

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