# Human Survival and the Self-Destruction Paradox:
# An Integrated Theoretical Model

Glenn D. Walters

*Federal Correctional Institution, Schuylkill*

Borrowing from evolutionary biology, existentialism, developmental psychology, and social learning theory, an integrated model of human behavior is applied to several forms of self-destructive behavior, to include anorexia nervosa, suicide, substance abuse, and pathological gambling. It is argued that self-destructive behavior is a function of how the individual psychologically construes survival and copes with perceptions of isolation and separation from the environment. The paradox of self-destructive behavior in organisms motivated by self-preservation is resolved by taking note of the fact that self-destruction stems from people's efforts to survive psychologically and resolve the subject–object duality, even when this places their physical well-being in jeopardy.

Since it is generally assumed that the human organism seeks to further its existence, self-destructive behavior, whether in the form of suicide, drug abuse, or self-starvation, presents a paradox. Swayed by the mass destruction of World War I, Freud (1920/1955) introduced the concept of a death instinct into his theory of human behavior. Ethologists, on the other hand, have long stressed the biological origins of aggressive behavior and the self-destructive outcomes that frequently arise when organisms discharge this instinct (Lorenz, 1965). Others, like the behaviorists, attribute self-destructive behavior to environmental factors and frustration (Berkowitz, 1989). It is unlikely, however, that any one of these models has the integrative breadth to provide a complete accounting of self-destructive behavior in organisms

---

genetically programmed for self-preservation. Just like the six blind men and the elephant, a parable that depicts the fragmented nature of modern day behavioral science theorizing, the psychoanalytic, ethological, and behavioral paradigms seem incapable of achieving a consummate and balanced understanding of the self-destruction paradox.

The field of psychology has been inundated with mini-theories that cover only a fraction of the relevant psychological data, issues, and outcomes. Although this assists the scientific effort by enhancing operationalization it has given the field a fragmented appearance (Yanchar and Slife, 1997). If psychology is to move beyond a preliminary understanding of the human experience it must be willing to examine and, if necessary, supplement traditional lines of inquiry with new ones. Old ideas, beliefs, and methods must be reevaluated in light of new findings and relationships, even if this means altering, modifying, or altogether abandoning some of our more cherished beliefs and assumptions about human nature. This can perhaps best be accomplished by scrutinizing and integrating ideas from a number of disparate theoretical traditions. The present model incorporates aspects of evolutionary biology, existentialism, developmental psychology, and social learning theory to explain the paradox of self-destructive behavior in an organism presumably driven to protect and advance its survival.

Self-destruction is ordinarily defined as the act or process of physically or psychologically destroying oneself. In the case of anorexia nervosa the destruction is both physical and psychological. According to DSM-IV (APA, 1994), anorexia nervosa is characterized by an intense fear of weight gain despite below average weight, amenorrhea (in postmenarcheal females), body image distortion, self-evaluations dominated by weight or shape, and denial. Not only is this a perplexing and poorly understood psychological condition, but the short-term morbidity and long-term mortality are higher than most other psychiatric disorders. For this reason, anorexia nervosa is one pattern that clearly satisfies conventional definitions of self-destruction. Suicide, drug abuse, and pathological gambling are other examples of self-destructive behavior, which along with eating disorders, form the nucleus of this discussion on the self-destruction paradox.

The question posed in this paper is how can an organism that is apparently motivated for self-preservation engage in behaviors, which at least on the surface, appear so patently self-destructive? Maslow (1970) would have likely argued that self-destruction occurs when a higher motive (e.g., self-esteem) supersedes a lower motive (e.g., physiological and safety needs). Hence, a person may starve him or herself or face financial ruin in order to implement an identity that gives him or her a sense of esteem. Although this interpretation has validity, it fails to account for the myopia that encourages a person to sacrifice lower level needs in favor of higher levels needs when to do so

may mean death, which in the end precludes all else. The current paper is designed to explore the possibility that the self-destruction observed in anorexia nervosa, suicide, substance abuse, pathological gambling, and a host of other self-defeating behaviors paradoxically reflects an organism's natural instinct to survive.

## Thesis and Major Concepts

The primary thesis of this paper is that self-destructive behavior reflects an organism's life instinct. The life instinct is a concept derived from evolutionary biology to explain why genetically programmed mechanisms evolve to protect an organism's survival (Buss, 1995). Threats to the life instinct are believed to arouse fear in lower animals and existential fear in humans. Existential fear is fear of nonexistence and a sense of isolation from one's environment. However, the manner in which this fear is expressed changes over the course of one's development. What begins as a simple fear for physical survival takes on added psychological meaning as the person begins to equate survival with the attainment of certain psychological goals (e.g., money, power, attention).

People cope with existential fear in different ways. Lazarus and Folkman (1984), for instance, maintain that general coping strategies fall into two broad categories: adaptive and maladaptive. The present model employs the concepts of adaptation (changing one's thinking or behavior in an effort to reduce existential fear) and patterning (repeating a cognitive or behavioral pattern as a means of reducing existential fear) in accounting for individual differences in coping style. Each of the major concepts described in this section (life instinct, existential fear, adaptation, patterning) contributes directly to the paradox of self-destructive behavior in organisms motivated for self-preservation.

## Four Assumptions

Evolutionary biologists define evolutionary strategies as behaviors designed to increase an organism's reproductive success or fitness (Maynard–Smith, 1982). The focus of such theorizing traditionally has been on perpetuating the species rather than on preserving the organism. Accordingly, evolutionary biologists draw a distinction between adaptation and advantage. Whereas adaptation encompasses strategies that elevate an organism's chances of producing independently functioning offspring, advantage refers to strategies that protect the survival and well-being of the individual organism (Barash, 1982). The first assumption made in this paper is that both strategies are adaptive. Attempts to differentiate between adaptation and advantage ulti-

mately prove futile because an organism cannot pass its genes onto future generations if it fails to survive to the age of reproduction. Since survival of the species and survival of the organism can be construed as complementary processes, adaptation is defined as strategies that maximize an organism's reproductive and personal fitness.

A second assumption made by the model outlined in this paper is that all organisms possess a self-preservation instinct and that survival of the species is a logical extension of an organism's ability to survive to the point of producing and rearing offspring. This instinct for self-preservation is believed to have its roots in the evolution of life as well as in the evolution of the human organism. For the purposes of this paper, the inborn drive to survive will be referred to as an organism's life instinct.

The life instinct is an evolutionary concept deemed applicable to all living organisms. Comprised of reflexes (animals) or primitive tropisms (plants) that promote survival, the life instinct is a genetically based drive. Evolution has equipped the human neonate with the sucking, rooting, and breathing reflexes, although other genetically programmed behaviors like the vestigial reflexes (e.g., Moro, grasping, and startle), may have had survival value for primitive homo sapiens. The Moro and grasping reflexes, for instance, may have promoted survival by allowing the newborn to secure itself to the mother's body while traveling. The startle reflex, on the other hand, alerts the organism to potentially threatening environmental changes. Although this reflex remains intact throughout the life cycle, many other genetically programmed responses disappear after the first several months of life. Nevertheless, all of these reflexes lay the groundwork for the development of learned responses initially observed when an infant begins habituating to previously presented stimuli (Slater, Morison, and Rose, 1984). Habituation reveals that environmental cues evaluated as non-threatening lose their ability to elicit a response. By the time the majority of innate reflexes have vanished the organism has already begun constructing inchoate adaptive strategies and primitive schematic models of its experience.

The current model traces the incentive features of human behavior to the life instinct and a person's efforts to maximize his or her survival advantage. Incentive is used here to describe the force that motivates an organism to action or inaction by means of its effect on the "reward systems" of the brain (Gardner, 1997). It is assumed that the human organism possesses the capacity to connect survival-supporting activities to these reward systems. This is the third assumption made by the present model. The positive feedback provided by brain stimulation encourages rapid acquisition of behaviors that have a direct or indirect bearing on the organism's ultimate survival. This, in turn, facilitates higher order conditioning to where existence-supporting behaviors eventually acquire the status of conditioned or secondary rein-

forcers. A behavior may receive its incentive from the fact that it reduces drive (e.g., hunger: Hull, 1943), induces drive (e.g., mastery: Deci, 1975), or elicits pleasurable sensations (e.g., cocaine use: Fischman and Schuster, 1982). To the extent that the reward systems of the brain foster survival, it is proposed that instincts and intracranial reward systems are inherently linked.

It has been understood for quite some time that the world is in a constant state of motion or change. The rotation of the earth around the sun gives rise to alternating periods of light and dark, changing seasonal patterns, and other environmental transformations. The observation that the world is continually changing serves as the foundation for the fourth and final assumption used to explain self-destructive behavior in organisms motivated for self-preservation. This assumption holds that the environment is in continual motion and that change is inevitable. The perpetual nature of environmental change, in fact, means that the life instinct is in a constant state of activation to the extent that it is stimulated by environmental change. The second (life instinct) and fourth (continually changing environment) assumptions of the present model interact to form the fundamental postulate that will be used to explain the paradox of self-destructive behavior in organisms presumed to possess an instinct for survival or self-preservation.

### The Fundamental Postulate and Major Corollaries

A constantly changing environment threatens the survival of all living organisms. Sociobiologists refer to this as ecological pressure (Wilson, 1980). It is proposed in the present model that organisms lacking an autonomic nervous system respond to ecological pressure by recording the threat at the cellular or tissue level. The threat is then communicated to neighboring cells and tissues through diffusion. Organisms capable of autonomic response, in comparison, react to ecological pressure with emotional arousal and a more efficient response. This second reaction is referred to as primal fear. Organisms capable of achieving a sense of self separate from the surrounding environment, not only have the capacity for autonomic arousal, but experience environmental change as a threat to their existence. This third reaction is referred to as existential fear.

Developmentally, existential fear unfolds once the individual begins differentiating him or herself from the external environment, a process that normally commences in one-year-old children (Lewis and Brooks, 1978). This awareness, however, conflicts with the existential concept of being-in-the-world (Binswanger, 1963) in which the person and environment are seen as inseparable. The sense of isolation engendered by perceptions of separateness from the environment is a major source of anxiety for most people (Bugental, 1965). Existential fear is an extension of primal fear — hence, the rationale

for using the term fear rather than anxiety — with two important additions. First, awareness of separation from the environment gives rise to a slowly evolving appreciation of human finitude and a corresponding fear of nonbeing (Tillich, 1952). Second, perceptions of separateness from the environment promote a subject–object duality whereby the subject learns about him or herself by comparison with the object (Boss, 1963). The isolation produced by perceptions of separateness from the environment is allegorized in the Biblical story of Adam and Eve in which humankind is expelled from the Garden of Eden (union with the environment) after eating from the tree of knowledge (awareness of the self separate from the environment).

It is generally agreed that all humans experience fear. In a review of studies on fear and phobias, Menzies and Clarke (1995) uncovered greater support for a nonassociative Darwinian (survival, fitness) interpretation of fear development than an associational (conditioning, learning) one. This suggests that many fears have their roots in an evolutionary process that transcends individual learning histories and environmental experience. The fundamental postulate of the present model holds that human behavior is increasingly motivated by existential fear once the organism achieves the capacity for self-awareness and can cognitively distinguish itself from the surrounding environment with the advent of representational thought (Müller, Sokol, and Overton, 1998). As mentioned, this occurs because perceptions of separateness give rise to a dawning awareness of human finitude and a sense of isolation from the environment. In an effort to cope with existential fear the human organism may put itself at risk by performing behaviors that provide short-term relief but are accompanied by a number of serious long-term complications.

By definition, the reflexes and tropisms that constitute an organism's life instinct respond to environmental stimuli. Research indicates that human infants prefer familiar as well as novel stimuli, although preference for the latter generally grows with age (Colombo and Bundy, 1983; Nachman, Stern, and Best, 1986). At first glance it would seem that novelty and familiarity have little in common. However, it may be more useful to conceptualize them as separate processes (Rheingold, 1985) joined by a common goal, that of furthering the organism's survival. The pursuit of novel stimuli encourages environmental exploration, the actualization of which holds promise of expanding the organism's repertoire of survival-enhancing skills by increasing knowledge and environmental control.

The pursuit of familiarity theoretically supports survival by reducing environmental stimulation and change. Whereas the pursuit of novelty signals the presence of a mastery motive, the pursuit of familiarity promotes tension reduction. For theorists like Hull (1943) drive is a primary motive that requires no additional elaboration with respect to precipitating or mediating factors. The present model alternately holds that drive and emotion are con-

nected through fear and that drive reduction is reinforcing because it relieves an uncomfortable emotional state (i.e., fear: Marks, 1987), while mastery derives strength from its ability to induce drive in ways that encourage environmental exploration. It is hypothesized that both drive reduction and mastery register in the reward systems of the brain because they are equally effective in advancing the life instinct and have been linked to thoughts, feelings, and actions that have previously favored survival.

The fundamental postulate asserts that drive induction and drive reduction are equally powerful motivators of behavior in the sense that both support survival. Personal advantage is served, not only by reducing tension and seeking familiarity, but also by increasing tension and exploring the environment. Tension induction may consequently be as reinforcing as tension reduction. As was stated previously, certainty or familiarity is reinforcing because it reduces discomfort, while uncertainty is reinforcing because it acts as a stimulus for new learning, understanding, and mastery. In fact, research suggests that uncertainty, rather than novelty, may be what motivates the exploratory behavior of young children (Wentworth and Witryol, 1984). It is the ongoing balance of these two motivational trends, drive induction and drive reduction, that is viewed to be crucial in cultivating a person's adaptive resources and protecting his or her long-term survival. Overemphasizing tension reduction to the exclusion of tension induction may interfere with the organism's ability to learn new responses and master the surrounding environment. Preoccupation with tension induction, on the other hand, leads an organism already taxed by a steady stream of sensation to be inundated with information it is unable to process.

Fear has its origins in the conflict that forms between the life instinct and a constantly changing environment. The fear becomes existential with the perception of separateness from the environment. However, existential fear evolves further as a consequence of the ongoing interaction that takes place between the person and his or her environment. Three general categories of experience — attachment, control, and identity — are believed to be instrumental in shaping this fear. Sociobiologists have long recognized the survival value of social cohesion and interpersonal support (Cantor, 1990), just as developmental psychologists have been acutely aware of the survival function of early bonding and attachment relationships (Sroufe, 1985). Consequently, events touching on issues of attachment and social support can have a powerful effect on perceptions of fear. However, these are not the only issues capable of transforming existential fear.

Personal and species survival also depend on an organism's ability to predict and control the environment (White, 1959). As such, predictability and controllability also mold personal perceptions of existential fear. The control aspects of fear may have stimulated the development of mythology and sci-

ence, the two primary pathways by which people attempt to understand their worlds. Personal identity is a third experience with implications for human survival. The present author concurs with Frankl (1984) in establishing life meaning and the identity such meaning presumes as major components of adaptive living. These three early life issues are believed to shape a person's experience of existential fear, making it a unique expression of a person's current existential condition and establishing the initial conditions for involvement in self-destructive behavior.

Attachment, control, and identity are clearly shaped and reinforced by cultural experience. Over time, however, some of these cultural influences may become genetically influenced. Fear of social exclusion is a powerful motive for social behavior in that ostracism from the group meant certain death for early humans (Buss, 1995). Smiling, which prior to six weeks of age is largely a reflexive action, is a social behavior capable of eliciting a caregiving response from significant others, thereby safeguarding the child's existence (Tautermannova, 1973). Control may also have an evolutionary basis. Some theorists trace aggressive behavior, dominance hierarchies, and territoriality to survival strategies designed to increase environmental control (Lorenz, 1965; Wilson, 1980). Personal identity, on the other hand, is a relatively recent historical development. Research indicates that personal identity has only been an issue for western cultures since the demise of feudalism (Fromm, 1941) when a collectivist attitude was replaced by individualism. Personal identity continues to be of less concern in modern collectivist cultures in the sense that group achievement is prized over personal accomplishments (Hofstede, 1983). Owing to the fact that personal identity is less of an issue in collectivist cultures than in individualistic cultures, it seems logical to assume that collectivist cultures may also experience lower levels of self-destructive behavior.

In order to test the possibility that collectivist cultures experience fewer self-destructive outcomes than individualistic cultures national estimates of individuality and crime were correlated. During the early 1980s Hofstede (1983) estimated the emphasis that fifty different countries placed on individuality versus collectivism. Kalish (1988) provides crime data for this same time period. The crime category selected was robbery because of its severity and fact that it was available for more countries than any of the other serious crime categories (i.e., murder, rape). The 26 countries represented in both surveys were ranked in terms of individuality and robbery arrests and then the two sets of rankings were correlated. The resulting Spearman correlation ($r = .50$, $p < .01$) revealed a moderately strong relationship between a nation's individuality and its annual rate of robbery arrests. This provides preliminary support for the supposition that individuality and issues pertaining to personal identity may promote self-destructive outcomes.

Within the framework of the present model there are two general strategies people use to manage existential fear: adaptation and behavioral patterning. Adaptation is marked by sensitivity, flexibility, and balance in stimulus preference (novelty and familiarity), motivation (tension reduction and mastery), and goals (long-term and short-term). Behavioral patterning, on the other hand, is distinguished by poor sensitivity, inflexibility, and imbalance in stimulus preference, motivation, and goals. Adaptation, in more specific terms, shows evidence of sensitivity to internal and external change, flexibility in responding to the current situational context, and skill in balancing preferences, behaviors, and decisions. Behavioral patterning, by contrast, is a rigidly performed series of interactions executed with little regard or concern for sensitivity, flexibility, and balance.

A person who fails to respond to the demands of a constantly changing environment is incapable of flexibly shifting from one role to another or balancing multiple contingencies. Such an individual is said to exhibit poor adaptability in the sense that he or she fails to adjust his or her behavior as the environment or situation changes (Smith, 1989). While behavioral patterning may provide a short-term solution to the problem of existential fear, such patterning often degenerates into self-destructive activity and places the person at increased risk for future adjustment difficulties. This is because patterned behavior is insensitive to the underlying existential issues of non-being and separateness. In direct contrast to the poverty of internal change found in behavioral patterning, adaptation is characterized by a wealth of changing internal possibilities designed to improve an organism's personal and reproductive fitness.

## Application of the Model to Self-Destructive Behavior

It is speculated that the strategies anorectic, suicidal, drug abusing, and problem gambling clients enlist as a means of managing existential fear become the patterned behavior that is responsible for the self-destructive outcomes they suffer. To better understand this process one must appreciate the dynamic interplay of behaviors and mechanisms that gives rise to pattern initiation, transition, and maintenance.

*Pattern Initiation*

Strategy selection is a function of both incentive (i.e., existential fear) and opportunity (i.e., learning experiences). Existential fear, which is shaped by survival-cuing concerns of a social attachment, environmental control, and personal identity nature, is what drives behavior. Whereas adaptation constitutes internal change in response to a constantly changing environment,

patterned behavior establishes a false sense of environmental immutability or non-change. The patterned strategy is effective in the short-run, but in the long-run it creates problems that cause a person to grow increasingly out of step with ongoing environmental change. Negative early life experiences may heighten one's experience of existential fear, which, in turn, may persuade some people to retreat into the short-term security of patterned behavior. Self-mutilation and suicide attempts, for instance, have been found to correlate with a history of childhood sexual and physical abuse, with earlier traumas being associated with greater self-mutilation (van der Kolk, Perry, and Herman, 1991). One of the implications of this research is that negative life experiences may encourage initial movement into the short-term security of patterned behavior. The types of negative environmental experience that motivate people to experiment with patterned behavior are manifold, although attachment, control, and identity are themes believed to run through many of these experiences.

The desire to be accepted by others may set a number of self-destructive patterns into motion. In proposing self-presentation as the mechanism behind eating disorders, unprotected sex, sunbathing, smoking, alcohol misuse, and cosmetic surgery, Leary, Tchividjian, and Kraxberger (1994) call attention to people's willingness to engage in a wide array of potentially dangerous activities in order to make a positive impression on others. Leary et al.'s theory is fine as far as it goes, but it fails to address the larger question of why people go to such lengths to impress others. The view advanced in this paper is that people engage in such potentially self-destructive actions as unprotected sex and excessive sunbathing because these actions hold promise of continued survival through social attachment.

Strategy selection is also influenced by a person's desire to achieve a sense of control in a world that is often perceived as unmanageable. There is no lack of speculation on suicide as an exercise in control. Shneidman (1993), for instance, views suicide as an active attempt by the individual to achieve mastery and control, whereas Blatt (1995) describes how a distorted expression of the mastery motive, in the form of rigid perfectionism, can lead to suicide. Mastery, as the reader may recall, is one of the primary avenues through which the human organism protects its survival. Failed attempts at mastery may encourage initiation of a self-destructive pattern like suicide, for in most unsuccessful suicides the individual receives increased attention from others and gains a sense of control that can be highly reinforcing. Crime is another self-destructive pattern that provides a strong sense of control in people saddled with feelings of powerlessness. Power and control are frequently mentioned as motives for crimes as diverse as rape (Groth and Birnbaum, 1979), robbery (Feeney, 1986), and spousal abuse (Dutton, 1995).

Identity concerns may be as important as the desire for social attachment and control in initiating self-destructive behavior. Mosbach and Leventhal (1988), for instance, observed that junior high school students' aspirations for identification with a particular clique had a powerful effect on their propensity to smoke cigarettes. Likewise, Zimmer–Hofler and Dobler–Mikola (1992) ascertained that a group of female Swiss–German heroin "addicts" retrospectively recounted heightened sex-role identity conflict just prior to their inaugural use of opiates. Anxiety over one's social self-image, a fear borne of both attachment and identity concerns, may encourage illegal drug use in adolescents and young adults (Kandel, 1980). Issues stemming from existential fear that relate directly to protection of one's survival — attachment, control and identity — may therefore set the stage for a particular pattern of self-destructive behavior, although these issues do not operate independently of other important learning experiences.

Learning opportunities are as critical to the initiation of self-destructive behavior as is existential fear. It is hard to imagine drug use in the absence of drug availability or a gambling problem without a role model to emulate. The opportunity features of patterned behavior acquisition follow basic operant, classical conditioning, and social learning principles. Gambling behavior may be resistant to extinction precisely because it provides a person with intermittent reinforcement (Walker, 1992), while eating disorders have been found to be more prevalent in situations where the individual has been exposed to eating-preoccupied role models (Nichter and Nichter, 1991). Receiving reinforcement for a particular behavior or observing the behavior in another person can have a major impact on the patterns that eventually form, but can also influence the strategy selection process (adaptation versus patterned behavior). People who are rewarded for handling a situation in a creative manner are more likely to respond adaptively to future situations than people who are not encouraged to develop their creative abilities. Likewise, children who observe a respected adult managing a problem in a unique way will often imitate and implement this strategy when confronted with a similar situation themselves. Conversely, people who are conditioned to a negative pattern or exposed to poor role models are themselves more likely to rely on patterned behavior to cope with the problems of everyday living.

*The Transition from Initiation to Maintenance*

Although the transition from behavioral initiation to maintenance is sometimes difficult to discern, there is no mistaking its significance. According to the model presented in this paper, the transition from initiation to maintenance is mediated by outcome expectancies. Outcome

expectancies are people's beliefs about the anticipated consequences of their involvement in a particular activity. Perhaps the most extensively studied expectancies are those that pertain to the perceived effects of alcohol. These expectancies are influenced by cultural (Christiansen and Teahan, 1987) and parental (Sher, Walitzer, Wood, and Brent, 1991) modeling long before a child has consumed his or her first drink, and proceed through additional stages of modification as the individual becomes personally acquainted with alcohol (Smith, Goldman, Greenbaum, and Christiansen, 1995). Research indicates that problem drinking adolescents expect greater social facilitation, relaxation, motor/cognitive enhancement, and sexual augmentation from alcohol than social drinking and abstinent adolescents (Brown, Creamer, and Stetson, 1987). Similarly, children who anticipate greater social acceptance from being thin are at increased risk for eating and body image concerns (Oliver and Thelen, 1996).

It has been proposed that alcohol expectancies form a memory network organized along two primary dimensions: positive–negative and arousal–sedation (Rather and Goldman, 1994). These two dimensions have also been identified in research on human affective response (Russell, 1980) and gambling (Walters and Contri, 1998). In a study exploring the relationship between expectancies and emotions, Leith and Baumeister (1996) determined that participants' willingness to take risks in a long-shot lottery was contingent on unpleasant mood states in combination with high arousal. Although there was no evidence that subjective utilities changed over the course of the experiment, Leith and Baumeister were able to solicit support for an impaired self-regulation interpretation of their results (i.e., "bad moods" reduce a person's odds of making rational decisions). One potential explanation that was not entertained by Leith and Baumeister but which merits serious consideration is the possibility that negative moods may trigger the expectancy that continued involvement in a wagering activity will lead to increased arousal and positive mood (or elimination of negative mood) based on an illusion of control created by the expectancy.

The illusion of control is a cognitive distortion that is observed, not only in problem gamblers, but in social gamblers who have experienced a few wins (Ladouceur, Gaboury, Dumont, and Rochette, 1988). This is reminiscent of the "big win" frequently observed in the backgrounds of problem gamblers (Custer, 1982). A rather large and unanticipated victory early in one's wagering career can influence future behavior by creating the expectancy that wins will keep coming and that one may even be able to earn a living from gambling. Self-verification serves to strengthen these expectancies while neutralizing disconfirmatory evidence (Swann, Stein–Seroussi, and Giesler, 1992). It has been noted, for instance, that habitual gamblers frequently attribute their loses to bad luck and view their wins as confirming their

insight and superior betting strategies (Wagenaar and Keren, 1988). This biased evaluation of outcomes is accompanied by selective recall in which the problem gambler is better able to access the positive experiences from memory than the negative experiences (Walters and Contri, 1998). Mounting loses and negative affect consequently have little effect on the problem gambler other then to encourage continued gambling as a way of recovering one's money and dignity.

The fact that the immediate effect of gambling supplies the individual with a lift or "high," simply reinforces the magical belief that gambling will ultimately eradicate one's concerns, debts, and, most importantly, fears. A similar process is observed in a young female who is complimented after losing a few pounds. Given the proper combination of incentives and opportunities this woman may develop the expectancy that dieting provides her with the self-respect and attention she craves but believes is only attainable through weight loss. The negative feelings she experiences, which in many cases are ignited by a perceived "need" to be thin, simply fuels this evolving belief system because such feelings as anger, depression, and fear are interpreted as verification that she has not yet reached a sufficiently low weight but that once she does her life will be "perfect."

The connection between outcome expectancies and existential fear was tested in a recent study of 98 federal prisoners (Walters, 1998). Participants completed three checklists: one that measured existential fear and concerns, another that assessed outcome expectancies for crime, and a third that surveyed the negative consequences of criminal involvement. The results indicated a stronger relationship between outcome expectancies and existential fear than between outcome expectancies and the negative consequences of prior criminal involvement. This implies that outcome expectancies may be shaped more by existential fear than by the perceived consequences of past criminal activity.

*Pattern Maintenance*

The mediating effect of outcome expectancies takes an initiating behavioral pattern and converts it into a pattern that begins to maintain itself even after the initiating conditions have disappeared. The concept of functional autonomy helps explain the nature of pattern maintenance (Allport, 1961). According to Allport, a behavior initiated under one set of conditions or reinforcers is oftentimes maintained by a separate set of conditions or reinforcers. The fear that drives a person into self-destructive behavior, therefore, is often not the same fear that compels him or her to remain in the pattern. Values and goals are clearly capable of maintaining self-destructive behavior, and appear to respond, at least in part, to existential fear. This suggests that

existential fear and the forces that shape it are not only powerful initiators of self-destructive behavior but also help maintain the behavior. Many people remain locked in a self-destructive pattern principally because it fosters survival-enhancing perceptions associated with social acceptance/support, environmental control/predictability, and personal identity/meaning.

Relationships can maintain self-destructive patterns by temporarily reducing existential fear. The development of a criminal support system by way of certain gang affiliations, for instance, can help maintain a delinquent pattern of behavior (Jackson, 1989). Interestingly, women wishing to give up an eating disorder sometimes report that they are subjected to subtle interpersonal pressure from intimates and acquaintances to remain in the anorectic pattern (Murray, Touyz, and Beumont, 1995). Weight control and body image are among the reasons cited by adolescent girls and young women who continue smoking cigarettes despite their awareness of the health risks (Gritz and Crane, 1991). Tobacco usage initiated by peer pressure or identity concerns may consequently be maintained by a separate set of factors, such as the appetite suppressant effects of nicotine and the belief that a thin physique will be greeted by social acceptance. Some individuals who start using steroids to improve their competitive edge in sports find certain social benefits (e.g., attention from others in the form of admiration and respect) to the continued use of the drug long after they have retired from competitive sports (Schrof, 1992).

Self-destructive patterns of behavior are also maintained by a person's desire to achieve control and predictability. Attributions centering on perceptions of control and predictability may be particularly important in maintaining patterned behavior. One such attribution is internal versus external locus of control (Rotter, 1966). Externally oriented individuals tend to attribute self-destructive behavior to chance, fate, or luck; others in this category view themselves as victims of powerful environmental forces. These kinds of attributions leave the externally oriented individual vulnerable to the development of patterned behavior by undermining his or her self-confidence and perceived ability to change, internal change being the hallmark of adaptability. Studies show that an external locus of control is associated with both suicidal ideation (Goldney, Winefield, Tiggeman, Winefield, and Smith, 1989) and prior suicide attempts (Pearce and Martin, 1993). External locus of control also figures in such self-destructive activities as eating disorders (Shisslak, Pazda, and Crago, 1990), tobacco smoking (Segall and Wynd, 1990), and alcohol abuse (Clements, York, and Rohrer, 1995).

Results from the study conducted by Clements et al. (1995) indicate that a group of adult children of alcohol abusing parents scored more externally than persons whose parents had not abused alcohol on a scale designed to assess drinking locus of control. Moreover, a personal history of alcohol abuse

was associated with much higher scores on the external drinking-related locus of control measure. Extrapolating from these results, one could speculate that a reciprocal relationship forms between attributional style and patterned behavior, a relationship capable of maintaining both the attributional style and patterned behavior. Should this be the case, it would not be unreasonable to assume that behavioral change may very well follow attributional change, a possibility supported by the results of a study in which a group of college students stated that the single most powerful deterrent to continued involvement in self-destructive behavior was an attribution of confidence in their ability to refrain from engaging in the behavior in the future (Lee, 1987).

Identity is the third major influence believed to shape existential fear. As such, it can play as pivotal a role in initiating and maintaining patterned behavior as social acceptance and control. The results of one study showed that the transition from initial opiate usage to heroin dependence or maintenance was mediated by, among other things, an evolving identity as a "street addict" (Hendler and Stephens, 1977). Borderline clients are often categorized as suffering from serious identity concerns (Linehan, 1993). It is possible, then, that the self-mutilative behavior commonly observed in these clients may be an attempt on their part to relieve existential fear by identifying with the self-destructive actions or borderline label; an identity which, once established, serves to maintain the negative pattern.

Eating disorders are also maintained by identity issues as the results of a study by McLorg and Taub (1987) bear out. Participant observation and in-depth interviews revealed that many of the persons who regularly attended a college-based self-help group for eating disorders molded their identities around the anorectic and bulimic actions that they felt subtly pressured by others to live up to, and which eventually helped maintain the self-destructive anorectic and bulimic patterns.

Fear, in the form of attachment, control, and identity concerns, clearly maintains self-destructive behavior. However, fear is not the only mechanism responsible for pattern maintenance. Behavioral patterns are also maintained by the physiological changes that sometimes transpire following prolonged involvement in patterned behavior. Rosenbaum (1995) reviewed data showing that chronic alcohol abuse is maintained by alcohol-induced changes in the brain that restrict a person's range of alternative behaviors. Furthermore, there is evidence that anorexia may be maintained by the physiological sequela of self-starvation (Turner and Shapiro, 1992).

Belief systems are a second extra-fear factor known to maintain patterned behavior. For the purposes of this paper belief systems will be defined as organized sets of beliefs that center on a particular subject and which are stored as nodes in a memory network (McNamara, 1992). Especially important is

the belief system people construct of themselves. This self belief system, referred to here as the self-view, not only incorporates the attributions and expectancies a person has about his or her own behavior, but also the thinking errors that lead to impulsive decision making (Beck, Wright, Newman, and Liese, 1993) and the cognitive styles that shield the behavioral pattern from information incompatible with continuation of the pattern (Walters, 1994).

Secondary gain is a third extra-fear factor that frequently plays a major role in maintaining patterned behavior. Parsons (1979) has discussed how enactment of the sick role can provide participants with secondary gain. Baumeister and Sher (1988) corroborate many of Parsons' ideas by illustrating how the self-destructive pattern of health care negligence can be maintained by contingencies that allow the person to be relieved of normal social obligations and responsibilities through adoption of the sick role.

## Risk Taking as an Alternative Explanation

It may be more parsimonious to view self-destructive behavior as a manifestation of risk taking than as a paradox motivated by existential fear. However, risk taking, like self-destruction, is a description rather than an explanation. Drafting an explanation means determining the factors responsible for individual differences in risk taking behavior. Two possibilities will be considered in this section: (1) risk-taking as a function of high sensation seeking tendencies and (2) risk-taking as a result of a unique learning history. Three brief case synopses will be used to evaluate the viability of these two alternative explanations of self-destructive behavior. First, there is the story of Sue, a regular sunbather, who continues to sunbathe despite the fact she has contracted skin cancer which has required three surgeries, one of which was for the removal of a melanoma. Then there is Jack, a gambler who enjoys betting on football, basketball, horse racing, and blackjack, but who is now thousands of dollars in debt and in jeopardy of losing his job and spending time in jail. Finally, there is Melvin who spends so much time at work that he has no social contacts save a wife who has threatened to leave him if he doesn't stop working 12-hour days. Each of these individuals presents a pattern of self-destructive behavior that demands explanation.

The high sensation seeking explanation for risk-taking behavior seems particularly applicable to Jack. One could argue that Jack finds gambling more thrilling than most people and that this is why he continually ignores and disregards the negative consequences of his gambling behavior. Humans, it would seem, are attracted to moderate degrees of novelty and arousal (Zuckerman, 1994) and research indicates that gambling promotes expectancies of moderately high arousal even in non-gamblers (Walters and Contri,

1998). Studies exploring the relationship between gambling and sensation seeking, however, are inconclusive, with some studies denoting a positive relationship between gambling and sensation seeking (Coventry and Brown, 1993), other studies suggesting a negative relationship (Blaszczynski, Wilson, and McConaghy, 1986), and still other studies showing no relationship between these two variables (Dickerson, Cunningham, Legg England, and Hinchy, 1991). If arousal level does not distinguish between those who have and have not had a problem with gambling then what does?

Most people have gambled, but fewer than one in 20 have experienced a significant gambling problem (Volberg, 1996). Many people sunbathe or stay late at work but are able to avoid the negative consequences that appear to plague Sue and Melvin. What separates normative arousal-seeking risk taking from the self-destruction of patterned behavior? First, it must be understood that all of these behaviors are believed to fall along a continuum of increasing involvement, commitment, and identification (Walters, 1999). As people become increasingly more involved in, committed to, and identified with a specific behavior — whether that behavior is gambling, sunbathing, or work—they sacrifice their authenticity, for authenticity entails being in harmony with oneself and one's environment (Bugental, 1965). People cannot be in harmony with either their internal or external environments if they are enacting patterns irrelevant to the situational demands of those environments. Exercise, for instance, can be an adaptive attempt to improve one's health status. However, when it becomes a preoccupation (involvement) around which a person's goals (commitment) and identity (identification) are arranged, that person becomes less authentic and will likely suffer negative long-term physical (e.g., joint pain), social (shrinking circle of friends), and psychological (e.g., decreased life meaning) consequences as a result.

A reinforcement history explanation could easily account for the initiation of patterned behavior on the part of each of the individuals described above. However, it fails to explain why only a small portion of people who experiment with a risky activity like cocaine use experience significant problems when research indicates that the activity is highly reinforcing (Fischman and Schuster, 1982). The reinforcement history model may explain why the short-term effects of a behavior exert more of an impact on decision-making than the less immediate long-term destructive effects, but it fails to resolve the issue of why people like Sue selectively underestimate their risk of negative consequences from health-impairing behavior when they can accurately gauge the risks others face when engaging in the same behavior (van der Velde, van der Pligt, and Hooykaas, 1994). The most damaging limitation of the reinforcement history model, however, is that it fails to account for Sue, Jack, and Melvin's continued involvement in self-destructive behavior

despite a cost/benefit ratio that even Sue, Jack, and Melvin can agree, clearly favors the negative or cost side of the equation.

The present model considers the paradox of self-destructive behavior in an organism motivated for self-preservation as an attempt to relieve existential fear. From the standpoint of the present model Sally's fear would be viewed as stemming from her desire for social acceptance. She will do anything to gain social approval, including risk skin cancer and death, because she has formed the expectancy, based on the compliments she received when she first started sunbathing, that a tan will earn her social praise. The foundation of Jack's fear appears to be in the area of control. He developed positive expectancies for gambling after a "big win" early in his gambling career and continues gambling because of the illusory sense of control it affords him. Melvin, it would seem, is motivated by identity concerns. He sought work with a large corporation as a way of initially managing identity-based existential fear and his long hours of work have paid off in the form of a new identity as the "hardest working man in the company." Each of these individuals is willing to risk negative outcomes, not because they are risk takers, but because the behavior helps relieve the uncomfortable feelings created by existential fear.

## Conclusion

The present paper was designed to illustrate how self-destructive patterns of behavior may paradoxically flow from a person's instinct to survive. One could argue that self-sacrifice leading to self-destructive outcomes is inconsistent with the model outlined in this paper. However, such behavior is also accounted for by the present model. Self-sacrifice is believed to constitute a generalization of the life instinct to objects and ideas outside oneself. A mother who leaps in front of a speeding car to save her child, a soldier who jumps on a hand grenade to save the lives of fellow squad members, and a revolutionary who willingly gives up her life for a political cause are all operating on the basis of a life instinct that has been generalized to people, situations, and ideals outside their physical being. The transcendence that comes with self-sacrifice is the mark of true authenticity (Tillich, 1952) and is one way the subject–object duality is resolved — and unity with the environment is restored.

The paradox that serves as a focal point of discussion in this paper is that behavioral patterning leads to self-destructive outcomes even as people strive to protect and assure their survival. This is because psychologicalization of the life instinct, as described in this paper, encourages actions (self-starvation, suicide, substance misuse) that ultimately threaten physical survival. Of course, the counterargument to the perspective advanced in this paper is that

the human organism is not innately self-preserving and that self-destructive behavior does not present a paradox. The proponents of this argument, however, bare the burden of explaining how organisms, human and nonhuman, have managed to survive innumerable hardships, catastrophes, and shifts in environmental milieu to remain on earth for millions of years.

The time has come to supplement the mini-models that have become popular in psychology with more integrated models of human interaction. The original omnibus theories like psychoanalysis and behaviorism have made substantial contributions to the field but are of limited utility in resolving the paradox of self-destructive behavior in organisms with a putative instinct to survive. Territoriality, schedules of reinforcement, and death instincts fail to capture the complexity of self-destructive actions like suicide, drug abuse, and crime. The purpose of this paper has been to illustrate the possibility of theoretical integration and psychology's role in taking the necessary steps to insure that potential avenues to such integration are properly explored.

Borrowing from a number of disparate, and seemingly contradictory, sources — e.g., evolutionary biology, existentialism, developmental psychology, social learning theory — the present model enjoys several distinct advantages. First, because it is not tied to any particular theory, it is free to borrow from several different perspectives. Second, the model is sufficiently flexible to incorporate new information as such information becomes available. Third, the model is as simple as it is complex. It is simple in the sense that it traces all behavior to a single source — survival — yet is sufficiently sophisticated to recognize that all behavior cannot be reduced to this motive for reasons of functional autonomy. Whether the present model stands up under empirical scrutiny remains to be seen. That it can serve as an example of how theoretical integration might proceed is the reason for its presentation at this time.

## References

Allport, G. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart, and Winston.

American Psychiatric Association. (1994). *DSM-IV: Diagnostic and statistical manual of mental disorders* (fourth edition). Washington, DC: Author.

Barash, D.P. (1982). *Sociobiology and behavior* (second edition). New York: Elsevier.

Baumeister, R.F., and Scher, S.J. (1988). Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. *Psychological Bulletin, 104*, 3–22.

Beck, A.T., Rush, A.J., Shaw, B.F., and Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford.

Beck, A.T., Wright, F.D., Newman, C.F., and Liese, B.S. (1993). *Cognitive therapy of substance abuse*. New York: Guilford.

Berkowitz, L. (1989). Frustration–aggression hypothesis: An examination and reformulation. *Psychological Bulletin, 106*, 59–73.

Binswanger, L. (1963). *Being-in-the-world: Selected papers of Ludwig Binswanger*. New York: Basic Books.

Blatt, S.J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50,* 1003.

Blaszczynski, A.P., Wilson, A.C., and McConaghy, N. (1986). Sensation seeking and pathological gambling. *British Journal of Addiction, 81,* 113–117.

Boss, M. (1963). *Psychoanalysis and Daseinanalysis* [J. Needleman, Trans.]. New York: Basic Books.

Brown, S.A., Creamer, V.A., and Stetson, B.A. (1987). Adolescent alcohol expectancies in relation to personal and parental drinking patterns. *Journal of Abnormal Psychology, 96,* 117–121.

Bugental, J.F.T. (1965). *The search for authenticity.* New York: Holt, Rinehart, and Winston.

Buss, D.M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry, 6,* 1–30.

Cantor, N. (1990). Social psychology and sociobiology: What can we leave to evolution? *Motivation and Emotion, 14,* 245–254.

Christiansen, B.A., and Teahan, J.E. (1987). Cross-cultural comparisons of Irish and American adolescent drinking practices and beliefs. *Journal of Studies on Alcohol, 48,* 558–562.

Clements, L.B., York, R.O., and Rohrer, G.E. (1995). The interaction of parental alcoholism as a predictor of drinking-related locus of control. *Alcohol Treatment Quarterly, 12,* 97–110.

Colombo, J., and Bundy, R.S. (1983). Infant response to auditory familiarity and novelty. *Infant Behavior and Development, 6,* 305–311.

Coventry, K.R., and Brown, I.F. (1993). Sensation seeking in gamblers and non-gamblers and its relation to preference for gambling activities, chasing, arousal and loss of control in regular gamblers. In W.R. Eadington and J.A. Cornelius (Eds.), *Gambling behavior and problem gambling* (pp. 25–49). Reno, Nevada: University of Nevada.

Custer, R.L. (1982). An overview of compulsive gambling. In P.A. Carone, S.F. Yoles, S.N. Kiefer, and L. Krinsky (Eds.), *Addictive disorders update: Alcoholism, drug abuse, gambling* (pp. 107–124). New York: Human Services.

Deci, E.L. (1975). *Intrinsic motivation.* New York: Plenum.

Dickerson, M.G., Cunningham, R., Legg England, S.L., and Hinchy, J. (1991). On the determinants of persistent gambling. III. Personality, prior mood, and poker machine play. *International Journal of the Addictions, 26,* 531–548.

Dutton, D.G. (1995). *The domestic assault of women: Psychological and criminal justice perspectives* (second edition). Vancouver, British Columbia: University of British Columbia Press.

Feeney, F. (1986). Robbers as decision-makers. In D.B. Cornish and R.V. Clarke (Eds.), *The reasoning criminal: Rational choice perspectives on offending* (pp. 53–71). New York: Springer-Verlag.

Fischman, M.W., and Schuster, C.R. (1982). Cocaine self-administration in humans. *Federal Proceedings, 41,* 241–246.

Frankl, V.E. (1984). *Man's search for meaning* (third edition). New York: Washington Square Press.

Freud, S. (1955). *Beyond the pleasure principle* [J. Strachey, Trans.]. London: Hogarth. (Original work published 1920)

Fromm, E. (1941). *Escape from freedom.* New York: Rinehart.

Gardner, E.L. (1997). Brain reward mechanisms. In J.H. Lowinson, P. Ruiz, R.B. Millman, and J.G. Langrod (Eds.), *Substance abuse: A comprehensive textbook* (pp. 51–85). Baltimore, Maryland: Williams and Wilkins.

Goldney, R.D., Winefield, A.H., Tiggeman, M., Winefield, H.R., and Smith, S. (1989). Suicidal ideation in a young adult population. *Acta Psychiatrica Scandinavica, 79,* 481–489.

Gritz, E.R., and Crane, L.A. (1991). Use of diet pills and amphetamines to lose weight among smoking and nonsmoking high school seniors. *Health Psychology, 10,* 330–335.

Groth, A.N., and Birnbaum, H.J. (1979). *Men who rape: The psychology of the offender.* New York: Plenum.

Hendler, H., and Stephens, R.C. (1977). The addict odyssey: From experimentation to addiction. *International Journal of the Addictions, 12,* 25–42.

Hofstede, G. (1983). Dimensions of natural cultures in fifty countries and three regions. In J. Deregowski, S. Dzuirawiec, and R. Annis (Eds.), *Explications in cross-cultural psychology.* Lisse: Swets and Zeitlinger.

Hull, C.L. (1943). *Principles of behavior.* New York: Appleton.

Jackson, P. (1989, June). Theories and findings about youth gangs. *Criminal Justice Abstracts,* 313–327.

Kalish, C.B. (1988). International crime rates. *Bureau of Justice Statistics Special Report.* Washington, D.C.: U.S. Department of Justice.

Kandel, D.B. (1980). Drug and drinking behavior among youth. *Annual Review of Sociology, 6,* 235–285.

Ladouceur, R. Gaboury, A., Dumont, M., and Rochette, P. (1988). Gambling: Relationship between the frequency of wins and irrational thinking. *Journal of Psychology, 122,* 409–414.

Lazarus, R.S., and Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Leary, M.R., Tchividjian, L.R., and Kraxberger, B.E. (1994). Self-presentation can be hazardous to your health: Impression management and health risk. *Health Psychology, 13,* 461–470.

Lee, D.E. (1987). The self-deception of the self-destructive. *Perceptual and Motor Skills, 65,* 975–989.

Leith, K.P., and Baumeister, R.F. (1996). Why do bad moods increase self-defeating behavior? Emotion, risk taking, and self-regulation. *Journal of Personality and Social Psychology, 71,* 1250–1267.

Lewis, M., and Brooks, J. (1978). Self-knowledge and emotional development. In M. Lewis and L.A. Rosenblum (Eds.), *The development of affect* (pp. 205–226). New York: Plenum.

Linehan, M.M. (1993). *Cognitive-behavioral treatment of borderline personality disorder.* New York: Guilford.

Lorenz, K. (1965). *Evolution and modification of behavior.* Chicago: University of Chicago Press.

Marks, I.M. (1987). *Fears, phobias, and rituals: Panic, anxiety, and their disorders.* New York: Oxford University Press.

Maslow, A.H. (1970). *Motivation and personality* (second edition). New York: Harper and Row.

Maynard–Smith, J. (1982). *Evolution and the theory of games.* Cambridge: Cambridge University Press.

McLorg, P.A., and Taub, D.E. (1987). Anorexia nervosa and bulimia: The development of deviant identities. *Deviant Behavior, 8,* 177–189.

McNamara, T.P. (1992). Priming and constraints it places on theories of memory and retrieval. *Psychological Review, 100,* 254–278.

Menzies, R.G., and Clarke, J.C. (1995). The etiology of phobias: A nonassociative account. *Clinical Psychology Review, 15,* 23–48.

Mosbach, P., and Leventhal, H. (1988). Peer group identification and smoking: Implications for intervention. *Journal of Abnormal Psychology, 97,* 238–245.

Müller, U., Sokol, B., and Overton, W.F. (1998). Reframing a constructivist model of the development of mental representation: The role of higher-order operations. *Developmental Review, 18,* 155–201.

Murray, S.A., Touyz, S.W., and Beumont, P.J.V. (1995). The influence of personal relationships on women's eating behavior and body satisfaction. *Eating Disorders: The Journal of Treatment and Prevention, 3,* 243–252.

Nachman, P.A., Stern, D.N., and Best, C. (1986). Affective reactions to stimuli and infants' preferences for novelty and familiarity. *Journal of the American Academy of Child Psychiatry, 25,* 801–804.

Nichter, M., and Nichter, M. (1991). Hype and weight. *Medical Anthropology, 13,* 249–284.

Oliver, K.K., and Thelen, M.H. (1996). Children's perceptions of peer influence on eating concerns. *Behavior Therapy, 27,* 25–39.

Parsons, T. (1979). Definitions of health and illness in the light of American values and social structure. In E.G. Jaco (Ed.), *Patients, physicians, and illness* (pp. 120–144). New York: Free Press.

Pearce, C.M., and Martin, G. (1993). Locus of control as an indicator of risk for suicidal behaviour among adolescents. *Acta Psychiatrica Scandinavica, 88,* 409–414.

Rather, B.C., and Goldman, M.S. (1994). Drinking-related differences in the memory organization of alcohol expectancies. *Experimental and Clinical Psychopharmacology, 2,* 167–183.

Rheingold, H.L. (1985). Development as the acquisition of familiarity. *Annual Review of Psychology, 36,* 1–17.

Rosenbaum, G. (1995). The alcohol paradox: A psychological model. *Journal of Clinical Psychology, 51,* 303–307.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80* (Whole No. 609).

Russell, J.A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, *39*, 1161–1178.

Schrof, J.M. (1992, June 1). Pumped up. *U.S. News and World Report*, pp. 55–63.

Segall, M.E., and Wynd, C.A. (1990). Health conception, health locus of control, and power as predictors of smoking behavior change. *American Journal of Health Promotion*, *4*, 338–344.

Sher, K.J., Walitzer, K.S., Wood, P.K., and Brent, E.E. (1991). Characteristics of children of alcoholics: Putative risk factors, substance use and abuse, and psychopathology. *Journal of Abnormal Psychology*, *100*, 427–448.

Shisslak, C.M., Pazda, S.L., and Crago, M. (1990). Body weight and bulimia as discriminators of psychological characteristics among anorexic, bulimic, and obese women. *Journal of Abnormal Psychology*, *99*, 380–384.

Shneidman, E.S. (1993). *Suicide as psychache: A clinical approach to self-destructive behavior*. Northvale, New Jersey: Jason Aronson.

Slater, A., Morison, V., and Rose, D. (1984). Habituation in the newborn. *Infant Behavior and Development*, *7*, 183–200.

Smith, G.T. (1989). Expectancy theory and alcohol: The situational insensitivity hypothesis. *Psychology of Addictive Behaviors*, *104*, 32–40.

Smith, G.T., Goldman, M.S., Greenbaum, P.E., and Christiansen, B.A. (1995). Expectancy for social facilitation from drinking: The divergent paths of high-expectancy and low-expectancy adolescents. *Journal of Abnormal Psychology*, *104*, 32–40.

Sroufe, L.A. (1985). Attachment classification from the perspective of infant–caregiver relationships and infant temperament. *Child Development*, *56*, 1–14.

Swann, W.B., Stein–Seroussi, A., and Giesler, R.B. (1992). Why people self-verify. *Journal of Personality and Social Psychology*, *62*, 392–401.

Tautermannova, M. (1973). Smiling in infants. *Child Development*, *44*, 701–704.

Tillich, P. (1952). *The courage to be*. New Haven, Connecticut: Yale University Press.

Turner, M.S., and Shapiro, C.M. (1992). The biochemistry of anorexia nervosa. *International Journal of Eating Disorders*, *12*, 179–193.

van der Kolk, B.A., Perry, C., and Herman, J.L. (1991). Childhood origins of self-destructive behavior. *American Journal of Psychiatry*, *148*, 1665–1671.

van der Velde, F.W., van der Pligt, J., and Hooykaas, C. (1994). Perceiving AIDS-related risk: Accuracy as a function of differences in actual risk. *Health Psychology*, *13*, 25–33.

Volberg, R.A. (1996). Prevalence studies of problem gambling in the United States. *Journal of Gambling Studies*, *12*, 111–128.

Wagenaar, W.A., and Keren, G. (1988). Chance and luck are the same. *Journal of Behavioral Decision Making*, *1*, 65–75.

Walker, M.B. (1992). *The psychology of gambling*. New York: Pergamon.

Walters, G.D. (1994). *Escaping the journey to nowhere: The psychology of alcohol and other drug abuse*. Washington, DC: Taylor and Francis.

Walters, G.D. (1998). *Outcome expectancies for crime: Their relationship to fear and the negative consequences of criminal involvement*. Manuscript submitted for publication.

Walters, G.D. (1999). *The addiction concept: Working hypothesis or self-fulfilling prophesy?* Boston: Allyn & Bacon.

Walters, G.D., and Contri, D. (1998). Outcome expectancies for gambling: Empirical modeling of a memory network in federal prison inmates. *Journal of Gambling Studies*, *14*, 171–189.

Wentworth, N., and Witryol, S.L. (1984). Uncertainty and novelty as collative motivation in children. *Journal of Genetic Psychology*, *144*, 3–17.

White, R. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, *66*, 317–330.

Wilson, E.O. (1980). *Sociobiology*. Cambridge, Massachusetts: Harvard University Press.

Yanchar, S.C., and Slife, B.D. (1997). Pursuing unity in a fragmented psychology: Problems and prospects. *Review of General Psychology*, *1*, 235–255.

Zimmer–Hofler, D., and Dobler–Mikola, A. (1992). Swiss heroin-addicted females: Career and social adjustment. *Journal of Substance Abuse Treatment*, *9*, 159–170.

Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. New York: Cambridge University Press.