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Distressed Behavior and Its Context

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Behavior that is commonly labeled as indicating distress may have an important function in certain clinical problems. Evidence suggests that "distressed" behavior is displayed more frequently by persons who are depressed or experiencing chronic pain. Such behavior includes nonverbal facial expressions and body postures which are typically labeled as "sad," and verbal responses involving self-denigration or complaints. Such behaviors appear to form a functional response class which has a unique impact on others. The behavior appears to be more likely among persons who are receiving aversive stimulation. Recipients of distressed behavior are more likely to experience negative emotion, yet be solicitous toward the person who displays distressed behavior. Under circumstances where distressed behavior is unsuccessful in reducing aversive stimulation, the behavior may be shaped and maintained by the fact that it temporarily reduces the probability of others behaving aggressively toward the person displaying distress. Thus, the development of a pattern of high rates of distressed behavior that characterizes clinically depressed persons and persons in chronic pain may be partly a result of the unique social contingencies that surround this behavior.

Key words: depression, distressed behavior, negative reinforcement, chronic pain, social behavior, mental discord

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This paper examines the role that behavior indicative of distress may play in the interactions of people who are depressed or experiencing chronic pain. Among the behaviors which might be considered indications of distress are self-denigrating statements, complaints about anything other than the person being addressed, and nonverbal displays of sadness. Such behavior appears to be a cardinal feature of the social behavior of depressed people and people who are experiencing chronic pain. It may prove to be typical of people who are experiencing any chronically aversive events. Analyses of the environmental conditions that prompt and reinforce such behavior could contribute to treatments for these problems.

Our work on distressed behavior (Biglan, Hops, & Sherman, 1988; Biglan et al., 1985; Hops et al., 1987) began with an interest in the social behavior of people who are diagnosed as depressed. Available evidence suggested that depressed people emit more behavior suggesting that they are distressed than do others. Our central concern was to identify contextual events which could contribute to the prediction and control of distressed behavior (Hayes & Brownstein, 1986). Our rough initial notion was that, at least for many people who are depressed, social behavior indicating distress prompts others to be solicitous and/or to refrain from behaving aversively. We were prepared to find that relationships between the diagnosis of depression and such behavior would be weak, since we did not assume that the diagnosis was based on similarities among people in functional response classes. We were also prepared to find that such behavior was characteristic of people who were having other types of problems.

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DISTRESSED BEHAVIOR

There are three types of behavior which, on the basis of the data described below, we have come to feel have the same functional effect for many people: (a) self-denigrating statements, (b) complaints, and (c) dysphoric behavior—nonverbal behavior suggesting sadness.

Self-denigrating involves negative statements about the speaker's physical, psychological, or behavioral states or abilities. For example, "I am unhappy," "I can't do that," "My stomach hurts." *Complaining* involves negative statements about any person or object other

than the person being addressed. For example, "They always make you wait in line at this store," "She never does what I ask," "It's cold in here." As discussed below, these two types of verbal behavior appear to have similar functional effects.

Dysphoric behavior consists of nonverbal responses which appear to be functionally similar to self-denigrating and complaining. Such behavior includes crying, sighing, and facial expressions and body postures that are indicative of sadness or dysphoria. Ekman and his colleagues (Ekman, 1973; Ekman & Friesen, 1984; Ekman, Friesen, & Ellsworth, 1972) have provided precise and replicable operational definitions of facial expressions of sadness as well as anger, happiness, surprise, disgust, and fear. They developed the Facial Affect Coding System (FACS) which specifies facial muscular movements believed to be associated with each emotion. Ekman and Friesen (1984) reviewed evidence that the facial expressions defined by their system produce high levels of agreement in labeling emotions across quite different cultures. The facial movements associated with sadness include raising the eyebrow and lower eyelid and turning the mouth down.

In earlier publications, we labeled these behaviors "depressive." However, that prompted some investigators to expect that only people who were diagnosed as depressed would exhibit this type of behavior. We have therefore changed the label of the behavior to "distressed" in order to encourage the investigation of the social contingencies which shape and maintain such behavior among people with a variety of problems.

A theoretical framework for the study of distressed behavior can be articulated in terms of three hypotheses (Biglan et al., 1988):

1. Distressed behavior is a cardinal feature of the behavior of people who are depressed or in chronic pain.
2. Distressed behavior has an impact on others which is uniquely different from the impact of other forms of behavior: (a) it is aversive, (b) it produces solicitous reactions, and (c) it reduces the likelihood of attack from others.
3. Under circumstances of continuing aversive stimulation, distressed behavior may be functional in reducing the rate or timing of aversive behavior coming from other family members, and this contingency may serve to shape and maintain distressed behavior.

The chief form of aversive behavior exhibited by other family members is aggressive behavior. Among the behaviors that we view as aggressive are verbal expressions of anger including statements which are disapproving (e.g., "You shouldn't have done that."), threatening (e.g., "If you do that again, I will slap you."), arguing (e.g., "That's not true!"), and humiliating (e.g., "You moron!"). Nonverbal behavior that appears to have the same functional effect includes angry facial expressions (lowered and drawn together eyebrows, tense eyelids, staring, and lips pressed tightly together, Ekman & Friesen, 1984), a raised voice, and bodily actions such as slamming or throwing things.

Most of the remainder of this paper is organized around these three hypotheses. However, before discussing the evidence regarding them, it seems important to contrast the focus of the customary approach to depression with the goals and procedures of behavior analysis.

BEHAVIOR ANALYSIS AND DEPRESSION

Depression is one of the more common psychological problems among adults (Boyd & Weissman, 1982). However, the customary construction of the problem is inconsistent with the way in which behavior analysts have tended to approach problems. Contrasting the two approaches may clarify the unique contribution that behavior analysis can make to the understanding and treatment of problems such as depression.

According to the Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978), a person is diagnosed as having a "major depressive disorder" if the person has:

1. One or more distinct periods with

dysphoric mood or pervasive loss of interest or pleasure
2. At least five of the following symptoms:
   a. Poor appetite or weight loss or increased appetite or weight gain
   b. Sleep difficulty or sleeping too much
   c. Loss of energy, fatigability, or tiredness
   d. Psychomotor agitation or retardation
   e. Loss of interest or pleasure in usual activities
   f. Feeling of self-reproach or excessive or inappropriate guilt
   g. Complaints or evidence of diminished ability to think or concentrate, such as slowed thinking or indecisiveness
   h. Recurrent thoughts of death or suicide, or any suicidal behavior
3. Duration of dysphoric features of at least one week
4. Sought or was referred for help from someone, took medication, or had impaired functioning with family, at home, at school, at work, or socially.

Using structured interview procedures and these criteria, inter-judge agreement on the diagnosis of major depressive disorder can be achieved (e.g., Spitzer et al., 1978). Moreover, people so diagnosed are more likely than people not receiving this diagnosis to have a variety of problems of importance, including suicidal behavior, marital distress, and psychologically distressed children (Biglan et al., 1988).

Behavioral researchers have pointed out that depression is not a unitary phenomenon (Biglan & Dow, 1981; Craighead, 1980). For example, according to criterion 2 of the RDC, one person diagnosed as depressed might present weight loss, sleep difficulty, tiredness, psychomotor agitation, and loss of interest in usual activities, while a second might show weight gain, extensive time spent sleeping, psychomotor retardation, feelings of self-reproach, and recurrent thoughts of death. Given the reliability of the diagnostic procedure and its widespread use in research and clinical practice, behavioral researchers have generally accepted the diagnostic approach for the purposes of conducting research. However, they have not assumed that it implies the functional unity of the criterion events or that it implies that "depression" is the cause of these "symptoms."

Two people who are diagnosed as "depressed" may or may not behave similarly. If they do, it may be possible to intervene in similar ways with them. If they do not, it may be necessary to intervene in different ways. Craighead (1980) articulated this problem in some detail and McKnight, Nelson, Hayes, and Jarrett (1984) presented empirical evidence that diagnostic similarity does not necessarily imply similarity with regard to what interventions will be effective. An important corollary of this view is that people who receive different diagnoses may be quite similar in some of their functional behavioral processes.

Thus, the diagnostic approach categorizes cases on the similarity of the *form* of their behavior. This approach will not necessarily reveal variables that predict and control the behavior of interest. In contrast, the central focus of behavior analysis is on identifying behaviors on the basis of the similarity in their functional relationships to contextual conditions. In this way, variables are more likely to be identified that can be manipulated in the interest of prevention or amelioration.

DISTRESSED BEHAVIOR AMONG PEOPLE WHO ARE DEPRESSED OR IN CHRONIC PAIN

Our conceptualization of distressed behavior (Biglan et al., 1988) was prompted by existing evidence about the social behavior of depressed people. Gotlib and Robinson (1982) found that, compared with nondepressed women, mildly depressed college women made more negative self-evaluative statements, fewer supportive statements, and were more critical in interactions with strangers. Jacobson and Anderson (1982) found that depressed college students made more negative statements about themselves in such interactions than did

nondepressed students. Hokanson, Sacco, Blumberg, and Landrum (1980) found that in playing a prisoner's dilemma game, depressed people were more likely than nondepressed people to obtain rewards at the expense of others. However, the depressed people communicated more "self-devaluation-sadness" and more "helplessness" to the other person than did other players. Such behavior could deter others from complaining about their style of play. In our own research, we examined whether such distressed behavior was more frequent among depressed women than among nondepressed women.

Distressed Behavior of Depressed Women

In order to examine the social behavior of depressed women and their families, 27 depressed women and their husbands and 25 nondepressed normal women and their husbands were studied (Biglan et al., 1985; Hops et al., 1987). To be included in the depressed subgroup, the women had to have a score on the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) of 18 or greater and had to meet Research Diagnostic Criteria (Spitzer et al., 1978) for Major or Minor Depressive Disorder. Fourteen of the couples with a depressed wife were also experiencing marital discord, as indicated by a mean score of 98 or less on the Dyadic Adjustment Scale (Spanier, 1976). To be included as "normal" neither partner could have a BDI score above 10 or a DAS score less than 100. Depressed and normal couples were matched on number of children, number of children under seven, and socioeconomic status.

Problem-solving interactions between depressed women and their husbands. Wife–husband dyads were observed during problem-solving interactions. Such interactions have been shown to produce interactive behavior that is different on several dimensions for couples who report marital discord on questionnaires compared with couples who do not report discord (Birchler, Weiss, & Vincent, 1975; Gottman, 1979; Margolin & Wampold, 1981). The couples were asked to discuss areas of their relationship about which they typically disagree. Two topics were discussed, each for ten minutes.

The interactions were coded using the initial version of the LIFE coding system (Arthur, Hops, & Biglan, 1982). Codes for nonverbal dysphoric affect and verbal self-denigration and complaining were collapsed to form a single code for distressed behavior. Reliability was calculated by having a second coder code 38% of the videotaped interactions. Correlations were computed between the mean rate of each code category obtained by each of the two coders. For distressed behavior the correlations were .66 for wives and only .46 for husbands. They were .94 and .96 for wives' and husbands' aggressive behavior. The mean level of distressed and aggressive behavior did not differ between the two coders. In these interactions, depressed women exhibited distressed behavior at a statistically significantly higher level than did nondepressed women or any of the husbands.

Two recent studies have replicated this finding. Nelson and Beach (1990) and Schmaling and Jacobson (1990) also examined the occurrence of distressed behavior in problem-solving interactions of couples in which the wife was depressed. Unlike our study, they were able to include a group of couples in which the wife was not depressed, but the couple was experiencing marital discord. This allowed them to examine whether distressed behavior is uniquely associated with depression or is also likely whenever marital discord occurs. Nelson and Beach (1990) found that distressed behavior occurred significantly more among depressed women than among nondepressed women, even when the nondepressed women were reporting marital discord. Schmaling and Jacobson (1990) also obtained these results, though only for discussion which involved a topic about which the couple experienced conflict.

Home observations. Each of the families in our sample was observed in the home on ten occasions (Hops et al., 1987). Verbal and nonverbal behavior were an-

alyzed separately. The depressed women did not differ from others on measures of verbal behavior involving distress (self-denigrations and complaints). However, depressed women exhibited significantly more dysphoric affect than did normal women. (The reliability of the latter code was .635 using Cohen's kappa.)

Distressed Behavior Among Chronic Pain Patients

If distressed behavior is a functional response to aversive stimulation, it could be found among persons who have problems other than depression. Therefore, data were obtained on the problem-solving interactions of a sample of 20 couples in which the wife was being treated for problems with chronic pain (Biglan & Thorsen, 1986). The mean length of time that these women reported experiencing pain was 11.9 years.

Due to funding restrictions, it was necessary to compare the behavior of the pain sample with the behavior of the normal couples we had recruited in the study described above. In comparison to the women in our normal couples, the women with chronic pain exhibited more distressed behavior. While some of the women with chronic pain had high scores on the Beck Depression Inventory, covariance analysis indicated that normal women and those in pain differed in distressed behavior even when variance associated with BDI scores was removed. Thus, it would appear that women experiencing chronic pain display more distressed behavior than "normal" women, even when they are not complaining of depression.

Some may find it surprising that women with two presumably distinct difficulties (depression and chronic pain) both exhibit more distressed behavior than normals. However, only if one expects that diagnoses such as "depression" are in some sense primary and in some sense determine the behavior of the individual should these results be surprising. If behavior is shaped and maintained by its consequences, it is likely that people exhibiting different diagnoses nonetheless exhibit similar social behavior because it is functional in some contexts. The fact that distressed behavior is exhibited by both women who are depressed and women who experience chronic pain suggests that such behavior may be functional in a variety of situations in which the person is experiencing aversive stimulation.

THE IMPACT OF DISTRESSED BEHAVIOR

Coyne (1976a) was the first to suggest that some of the behavior of depressed people is aversive to others. He showed that people who talk over the phone with a depressed person rated themselves as more depressed, anxious, and hostile and were more rejecting of the person than was true for people who talked to a nondepressed person. This basic finding has been replicated using a variety of methods. Subjects have responded more negatively to depressed than nondepressed persons following face-to-face interactions (Gotlib & Robinson, 1982; Strack & Coyne, 1983). Compared to their reactions to nondepressed persons, naive subjects have been shown to respond more negatively to confederates role-playing a depressed person (Hammen & Peters, 1978; Howes & Hokanson, 1979), to audiotaped interviews of depressed persons (Boswell & Murray, 1981), and to written descriptions of the behavior of depressed people (Gotlib & Beatty, 1985; Hammen & Peters, 1977; Winer, Bonner, Blaney, & Murray, 1981). Persons who meet diagnostic criteria for depression are also rated as less socially skilled than nondepressed people by those with whom they interact and by observers of their behavior (Youngren & Lewinsohn, 1980). In sum, there is considerable reason to believe that people who meet questionnaire or diagnostic criteria for depression are behaving in ways that prompt negative reactions from others.

It seemed likely that distressed behavior was prompting these negative reactions. Therefore, two studies were conducted on the impact of distressed behavior (Biglan, Rothlind, Hops, &

Sherman, 1989). Our strategy was to present subjects with samples of distressed and other types of behavior and ask them to rate how they would feel and react if the behavior were directed toward them by their spouses. Ratings of likely feelings and reactions may not precisely predict how people will actually react. However, there is evidence that such ratings predict actual behavior (e.g., Hoffman, 1983) and that the results of rating studies of social behavior parallel those of direct observation studies (Dow, Glaser, & Biglan, 1981). Samples of people's verbal statements about distressed behavior can provide inexpensive methods of exploring the social significance of these behaviors which could lead to more refined tests of the impact of the behavior using more costly direct observation methods.

Study 1 involved 50 couples who were asked to rate written descriptions of one of five types of behavior: self-denigration, complaint, aggression, facilitation, and neutral talk. For each type of behavior, several written examples were given which came directly from the LIFE coding manual (Arthur et al., 1982). Subjects were asked to imagine that their spouses were emitting the behaviors in question. There were no statistically significant differences between men's and women's ratings.

Consistent with the hypothesis that self-denigration and complaint are similar in impact, there were no significant differences between the ratings of these two behaviors.

Compared to neutral behavior, self-denigration and complaint resulted in lower ratings of positive feelings such as "happiness" and higher ratings of negative feelings such as "anxiety," "irritation," "anger," and "defiance." At the same time, self-denigration and complaint produced high ratings for feelings involving solicitousness such as "sympathy," "supportiveness," and "caring" and for the likelihood that they would comfort or support the person emitting the behavior. Thus, these two behaviors appear to function similarly.

Not surprisingly, aggressive behavior was also rated as likely to produce negative feelings. However, despite the negative reactions that both aggressive and distressed behavior produced, subjects indicated that they would be significantly more likely to say something hostile or to argue in response to aggressive behavior than in response to self-denigrations or complaints.

In study 2, a new sample of 41 couples rated videotaped depictions of a woman exhibiting distressed, aggressive, and neutral behaviors. Men were asked to imagine that the woman behaving was their wife and women were asked to imagine that she was a friend. In this study it was possible to examine the impact of both verbal and nonverbal aspects of distressed and aggressive behavior. Behavior that was distressed both in terms of its verbal and nonverbal content produced higher ratings of "anxiety" and "sadness" and lower ratings of "happiness" than did neutral behavior. In other words, subjects indicated that they would feel worse in response to distressed behavior than in response to neutral behavior. Moreover, the ratings indicated that subjects would be more solicitous in response to distressed than in response to neutral behavior. They said they would feel more "caring," "sympathetic," and "supportive" and would be more likely to comfort and support the person and to discuss the subject with her.

Reactions to distressed and aggressive behavior were then compared. Subjects indicated that they would counteraggress in response to aggressive behavior, but would be comforting and supportive in response to distressed behavior. Moreover, distressed behavior would produce significantly fewer argumentative or hostile reactions than would aggressive behavior.

In sum, in both studies subjects' ratings supported the hypothesis that distressed behavior has a more negative impact than neutral behavior in the sense that it produces more negative and less positive ratings of feelings. To the extent that negative feelings are aversive or indicate the occurrence of aversive stimuli, these results suggest that one functional

effect of distressed behavior may be to produce avoidance behavior in others.

SOCIAL CONTINGENCIES AFFECTING DISTRESSED BEHAVIOR

Available evidence as well as theoretical accounts of the social behavior of depressed people (e.g., Coyne, 1976b) suggest that distressed behavior can be maintained by negative reinforcement in the form of avoidance of aversive behavior from others.

There is considerable evidence that persons who are depressed receive aversive stimulation from others (Biglan et al., 1988; Biglan, Lewin, & Hops, 1990). Our own research showed that others direct aggressive behavior toward depressed people and also toward chronic pain patients. In problem-solving interactions, depressed women and their husbands tended to display more aggressive behavior than did other couples. In the study of chronic pain patients, the patients' husbands exhibited significantly more aggressive behavior than did husbands of "normals." In the home observations of depressed and normal families, the children of depressed mothers exhibited significantly more nonverbal behavior coded as "irritated."

The evidence reviewed in the previous section indicates that others are motivated to be solicitous of persons exhibiting distressed behavior. In many circumstances such solicitousness may result in people being less aversive to a person when they exhibit distress. For example, a person comes home complaining of a hard day at work; his spouse comforts him and thereby reduces the aversive feelings that he is having. A person who is injured or has a loved one die receives messages of support and caring from many people. Such reactions are probably instrumental in assisting people in coping with the aversive change in their world.

However, for a variety of reasons, efforts to comfort or assist distressed people may not reduce the aversive stimulation to which they are exposed. Pain may persist despite all efforts to be supportive. It may be beyond the power of family members to reduce aversive stimulation that a family member is receiving. Perhaps most commonly, other family members may, themselves, be prime sources of aversive stimulation.

But even if distressed behavior is not successful in eliminating aversive stimulation, it may be functional in producing temporary respites from such stimulation and these respites may function to reinforce distressed behavior (Hineline, 1977). To explore this possibility, we analyzed the sequences of interactions in our direct observation data. For each husband–wife or mother–child dyad, *z*-scores were composed based on the conditional probability of a particular consequence given that distressed behavior had occurred. (See Biglan et al., 1985, for a description of the data analytic procedures.)

In the home observations (Hops et al., 1988), depressed mothers' dysphoric behavior was followed by a greater reduction in the probability of husbands' and children's aggressive affect than was true in families of nondepressed women. In the problem-solving interactions (Biglan et al., 1985), the wives' distressed behavior was associated with greater suppression of husbands' subsequent aggressive behavior among couples with marital discord and a depressed wife than among either normal couples or couples with no marital discord and a depressed wife. Thus, we identified some circumstances in which distressed behavior may be functional in producing brief respites from the aggressiveness of the maritally dissatisfied partner.

There was also evidence that distressed behavior functions in this way for people experiencing chronic pain. Among the couples with a wife in pain, the probability of the husband's aggressive behavior was reduced more following the wife's distressed behavior than was true for "normal" couples.

Nelson and Beach (1990) failed to replicate our finding that depressed women's distressed behavior suppresses their husband's aggressive behavior when there is

marital discord. However, they did find something very interesting that suggests the importance of couples' efforts to cope with distressed behavior. They included couples in which there was marital discord but no depression, as well as couples in which the wife was depressed and there was marital discord. They noticed that these couples differed in the length of marital discord. Those with a depressed partner had problems with marital discord for a longer period of time than those without a depressed partner. When they examined the relationship between their measure of the suppressive effect of the wife's distressed behavior on the husband's aggressive behavior they found that it was negatively related to the length of marital discord. In other words, in the initial stages of marital discord, her distressed behavior was functional in getting him to stop aggressive behavior, but as the discord persisted, its effect on him diminished.

Nelson and Beach (1990) may have provided a snapshot of the development of depression. Over time, the depressed woman's distressed behavior may become less effective in reducing the likelihood of his aggressive behavior. This could have the effect of thinning the negative reinforcement for her distressed behavior. That is, as marital discord continues, he may be less and less inclined to refrain from aggressiveness immediately following her displays of sadness, self-denigration, or complaint. Thus, over time, she has to be distressed more frequently in order to produce a decrement in the probability of his aggressive behavior.

Schmaling and Jacobson (1990) found no evidence that distressed behavior reduces others' aggressive behavior. They compared couples who varied in levels of marital distress and the wife's depression. Although depressed women did display more distressed behavior, analysis of the conditional probability of the husband's aggressive behavior, given the wife's distressed behavior, did not indicate that her distressed behavior decreased the probability of his aggressive behavior. Schmaling and Jacobson (1990) suggested that their failure to replicate could have been due to differences in the coding system they used or to their inclusion of a maritally distressed but nondepressed group of couples. Nelson and Beach's (1990) results suggest that length of marital discord may be another variable which would influence the effects of distressed behavior on the husband's aggression.

Two recent studies by Dumas and his colleagues provide additional evidence suggesting that people who are depressed are engaging in behavior that is functional in reducing aversive behavior of others. The first (Dumas, Gibson, & Albin, 1989) involved families of 51 children who had been referred for problems of noncompliance or aggressive behavior. Family interactions were observed in the home for an average of 4.96 one-hour sessions. Variability in mothers' scores on the Beck Depression Inventory was analyzed in relation to the observed child behavior. The children of women who were high on the BDI had significantly higher rates of compliance and significantly lower rates of behavior coded as "aversive."

Dumas and Gibson (1989) analyzed the behavior that target children directed toward mothers, fathers, and siblings for 47 of these same families for whom observation data were available for siblings and/or fathers. They found that the rates of these children's compliance and "aversive" behavior directed toward mothers versus fathers differed depending on maternal depression. High scores on the measure of maternal depression were associated with more compliance toward the mother than the father, while low scores were associated with more compliance toward fathers than mothers. Similarly, maternal depression was associated with less aversive behavior being directed toward the mother than the father, and absence of maternal depression was associated with more aversiveness being directed toward the mother than the father. Comparing mother–child and child–sibling interactions, it appeared that mothers who were depressed received less aversive behavior from their

children than did nondepressed mothers, but that the siblings in the families of depressed women received more aversive behavior than did siblings in families of nondepressed women.

Neither of these studies directly coded the distressed behavior of these women. However, given the evidence cited above, it is likely that the women who were depressed were engaging in more distressed behavior than the other women. The results are, in any case, consistent with the hypothesis that depressed women are doing something that is functional in reducing aversive behavior toward them. Moreover, they suggest that depressed women are doing something that is functional in increasing compliance from their children.

Is Other Family Members' Aggressive Behavior Reinforced by the Avoidance of Distressed Behavior?

Ironically, the aggressive behavior which others direct to depressed persons may itself reflect an effort to avoid distressed behavior. Analyses of the sequential dependencies in the problem-solving interactions of the depressed women indicated that for the couples with marital discord and depression, the probability of the wives' distressed behavior, given that the husband had just been aggressive, was reduced significantly more than was true for normals or depressed-only couples. Similarly, for the chronic pain patients, the probability of the wife's distressed behavior was reduced significantly more by the husband's aggressive behavior than was true for normal couples. In other words, in these instances, the wife may be inadvertently negatively reinforcing his aggressive behavior at the same time that he is inadvertently reinforcing her distressed behavior.

It may be counterintuitive that both members of a dyad could have their aversive behavior maintained by the negative reinforcement involved in avoiding aspects of the other's behavior. However, evidence from experimental analyses clearly indicate contingencies in which brief avoidance of aversive stimulation or alterations in its rate or patterning can maintain the avoidance behavior, even when many aversive events are not avoided (Hineline, 1977). Thus, the distressed behavior of one member of the dyad and the aggressive behavior of the other member could be simultaneously maintained.

The Effects of Modifying Interactive Patterns

If we are correct that the distressed behavior of depressed people is maintained in part by the pattern of aversive interactions with other family members, modification of those patterns could result in changes in depression. Beach, O'Leary, and their colleagues (Beach & Nelson, 1990; Beach & O'Leary, 1986; Beach, Sandeen, & O'Leary, 1990; O'Leary & Beach, 1990) have developed a model for the treatment of depressed individuals who are also maritally distressed which provides support for this hypothesis. They reasoned that for depressed individuals who were in a maritally distressed relationship, the marital discord was a major source of aversive stimulation. Successful marital therapy should thus contribute to a reduction in depression at the same time that it relieves the marital distress (Beach et al., 1990).

In a preliminary study, working with couples in which the wife met diagnostic criteria for depression, Beach and O'Leary (1986) randomly assigned three couples to receive marital therapy, while three were assigned to receive cognitive therapy for depression, and two were assigned to a wait-list control. Both treatment conditions produced improvements in depression, but only marital therapy reduced marital discord as well.

A subsequent study with larger numbers of subjects (12 in each condition) and longer follow-up replicated these findings (O'Leary & Beach, 1990). The treatment for marital discord included many elements in addition to the effort to reduce interactions involving distressed and aggressive behavior. However, the results are consistent with the

thesis that distressed behavior is functional in the context of aversive interactions.

SUMMARY

Under circumstances of aversive stimulation a person is more likely to engage in the verbal or nonverbal behavior which we have labeled "distressed." Whether one continues to behave in this way depends on the contingencies for the behavior. If aversive stimulation continues and such distressed behavior produces an immediate reduction in the probability of aggressive behavior from others, the rate and perhaps the intensity of such behavior may be maintained or even increased. At the same time, the aversive behavior of others may be negatively reinforced by brief reductions in the probability of the distressed behavior.

Although distressed behavior may not produce immediate aggressive behavior from other family members, evidence that it is aversive and evidence that aversive stimulation can produce counteraggression (e.g., Azrin, Hutchinson, & Hake, 1966) suggest that other family members may be more likely to behave aggressively toward the woman at times when she is not acting distressed. Under these circumstances, both the distressed behavior of the woman and the aversive behavior of other family members may be maintained, especially if aversive stimulation (such as problems in employment, the legal system, the schools, or the social welfare system, or disability associated with chronic pain) continues to impinge on the family.

IMPLICATIONS FOR FURTHER RESEARCH

The Contingencies for Individuals

None of the studies reviewed here involved experimental analyses of the contingencies for individuals. The group designs which have been used may not provide an accurate picture of the contingencies for any given individual. For example, consider the finding that families with a depressed mother and those without a depressed mother differ in the conditional probability of family members' aggressive affect following the mother's dysphoric affect. This demonstrates that the contingencies for dysphoric affect *on the average* differ for depressed and nondepressed women. However, it falls short of demonstrating that depressed women's dysphoric affective behavior is maintained by negative reinforcement involving the avoidance of other family members' aggressive affective behavior. Experimental manipulation of the contingencies for individual women's affective behavior would be a more convincing demonstration of the importance of these contingencies.

Elsewhere we have reviewed the experimental evidence on the effects of aversive stimulation and its implications for research on families (Biglan, Glasgow, & Singer, 1990). Although experimental analyses of aversive events indicate a variety of ways in which these events can maintain behavior, the only contingency that has been examined in studies of family interactions is the immediate response of the other person following the behavior class under study. Despite experimental evidence of their importance (Hineline, 1977), the effects of more delayed reductions in the frequency, density, or magnitude of aversive behavior of others have not been studied in families. Data collection and analytic techniques are needed that would allow study of these more subtle contingencies.

The Generality of Findings

Gender differences in the contingencies for these types of behavior should be explored. The research reviewed here has focused entirely on women. The main reason for this is that the rate of depression among women has consistently been found to be twice the rate among men (Boyd & Weissman, 1982). It is not known whether the just-reviewed findings can be generalized to men. There may be differences in sex role socialization such that distressed behavior is more accepted for women and aggressive be-

havior (an alternative response to aversive stimulation) is less accepted (Blechman, 1981). Moreover, in the context of childrearing tasks, women may be more likely to receive aversive stimulation than men (Patterson, 1980).

We have also suggested that distressed behavior may be more likely to occur in any social circumstances in which aversive stimulation is frequent and other forms of behavior such as aggression are not successful in reducing the aversive stimulation. Future research should examine whether distressed behavior is a characteristic feature of the behavior of other groups which are having psychological problems.

Prevention and Amelioration

The findings reviewed above underscore the need for interventions which assist families in managing the aversive events which impinge on them. Research is needed on the types of aversive events which family members experience and the ways in which their occurrence can be reduced.

At the clinical level, interventions may not be simply a matter of damping down the rate of aversive behavior in the family. In a sense, the data reviewed here suggest that families may get into difficulties precisely because they are too motivated to avoid other family members' distressed or aggressive behavior. Clinical interventions which assist family members in construing these behaviors differently may be fruitful. Hayes (1987) has articulated a behavior–analytic approach to this problem which appears quite promising.

Public policy is also relevant. Some of the factors which affect families' aversive interactions are unlikely to be modified through clinical interventions (Biglan et al., 1990). For example, Dumas and Wahler (1983) have shown that socioeconomic variables and mothers' lack of social support deleteriously affect the outcome of parent-training programs. Modification of these variables may depend on our developing ways for other elements of the community to provide social and material support of families.

CONCLUSION

Distressed behavior may be a characteristic feature of the behavior of people who are exposed to aversive stimulation. Systematic investigation of the situations in which this behavior occurs and the contingencies which maintain it could contribute to more effective efforts to prevent and treat a variety of behavioral problems.

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