

## **BIELEFELDER ARBEITEN ZUR SOZIALPSYCHOLOGIE**

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**Dyadic Interaction with Partner  
and Alleged Stranger in an  
Experimental Game: Depressed,  
Mixed, and Nondepressed Dyads**

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### **Abstract**

Empirical evidence based on Coyne's (1976) interactional depression model has been criticized for focusing on interactions with strangers instead of relevant family members (Doerfler & Chaplin, 1985). The present study compared the behavioral and emotional reactions among groups of student dyads differing in depression status (both members depressed, both nondepressed, mixed) under two interactional conditions (close partner, alleged stranger). Dyads interacted in an extended 3 x 3 prisoner's dilemma game with three behavioral choices (cooperation, defection, avoidance), indicating their emotional reactions after each trial. As expected, depressed, mixed, and nondepressed dyads, in that order, reported more negative emotions, preferred more avoidant behavior, reciprocated less following their partners' defections and retaliated less following their partners' defections during their own cooperation. Partner condition yielded rare interactions with depression status, supporting Coyne's (1985) argument that essential features of depressed interactions are revealed in contacts both with strangers and close relatives.

According to Coyne's (1976) interactional depression model, depressed individuals and their families are prone to engage in escalating ambiguous and mutually manipulative interactional sequences wherein the depressed person diffusely aims at soliciting reactions of support and acceptance, whereas partners tend to react with negative feelings yet a lack of overt hostility and with tendencies of withdrawal. Based on this view, a variety of studies have provided evidence that depressed individuals are rejected or avoided by their previous interaction partners and that they elicit negative mood states in them (see Gurtman, 1986, for a survey). Most of these studies investigated depressed persons' contacts with strangers (see Doerfler & Chaplin, 1985, for a critique), whereas only a few were concerned with family interaction (Coyne, 1985). Comparisons between the two interaction conditions, 'close relative' versus 'stranger', were not made.

The present study addressed this gap. Depressed, nondepressed, and mixed dyads interacted in a symmetric mixed-motive game (Colman, 1982) under the two conditions, 'close partner' and 'alleged stranger'. Dependent variables were the players' covert negative emotions and their overt avoidance (frequency characteristics) as well as their overt negative reciprocity and retaliation (sequential characteristics) in the game. Depressed, mixed, and nondepressed dyads, in that order, were predicted to report more negative emotions, show less negative reciprocity and retaliation behavior, and more avoidance. More pronounced effects were expected for the close partner condition.

## Method

### *Subjects*

Participants were 34 heterosexual student couples (mean age 24.8, mean duration of partnership 2.5 years). According to their scores on the Beck Depression Inventory (BDI; Beck, 1967), they were classified into groups of depressed (BDI scores of both partners  $> 9$ ;  $N = 11$ ), nondepressed (BDI scores of both partners  $< 5$ ;  $N = 9$ ), or mixed (BDI scores  $< 5$  and  $> 9$ ;  $N = 14$ ) couples. Originally, BDI screening of 92 student couples yielded 38 participating couples. The data of four couples were not included due to their doubts at the 'stranger' induction which was revealed by the manipulation check.

### *Material and Procedure*

Two couples at a time played at four interconnected terminals mounted into individual booths with no mutual visual or acoustic connection. Each pair of couples played two games, half of them starting with the partner or the stranger condition. For the latter, players allegedly interacted with the heterosexual partner of the other dyad while in fact they played with their close partner. The game was an extended 3 x 3 prisoner's dilemma game with 60 trials. For each trial, players simultaneously chose among three behavioral alternatives, received feedback about the partner's choice, and indicated their emotional reactions. Behavioral choices were cooperation (C), defection (D), and avoidance (A). (Subjects rated their connotations of the behavioral choices at the end of the experimental sessions, confirming the present labels.) Joint payoffs of the players' choices were symbolized in point gains or losses in the symmetric game matrix: C/C : 3/3; D/D : -2/-2; A/A : 0/0; C/D : -3/4; D/A : 1/-2; C/A : -1/2. Emotional reactions (satisfied, disappointed, angry, helpless) were rated on 4-point scales (1 very much, 4 not at all) following each trial.

## Results

Each dependent variable was calculated for the dyad as statistical unit. The two-way Depression x Condition MANOVA of the *negative emotion* ratings (averaged over all trials) yielded a significant two-way interaction (Wilk),  $F(8, 56) = 2.12$ ,  $p < .05$ , explained by a singular Condition main effect for helplessness,  $F(1, 31) = 4.22$ ,  $p < .05$ , and uniform Depression main effects for all four emotions (satisfied:  $F(2, 31) = 3.76$ ; disappointed:  $F(2, 31) = 4.50$ ; angry:  $F(2, 31) = 3.94$ ; helpless:  $F(2, 31) = 3.94$ ; all  $p$ 's  $< .05$ ). Helplessness was lower in the partner than in the stranger condition (3.71 vs. 3.62). As expected, depressed, mixed, and nondepressed dyads, in that order, reported more dissatisfaction (2.34 vs. 2.0 vs. 1.61), disappointment (3.26 vs. 3.56 vs. 3.67), anger (3.20 vs. 3.56 vs. 3.66), and helplessness (3.47 vs. 3.71 vs. 3.84). Significant differences occurred between depressed and nondepressed dyads ( $p < .05$ , Newman-Keuls).

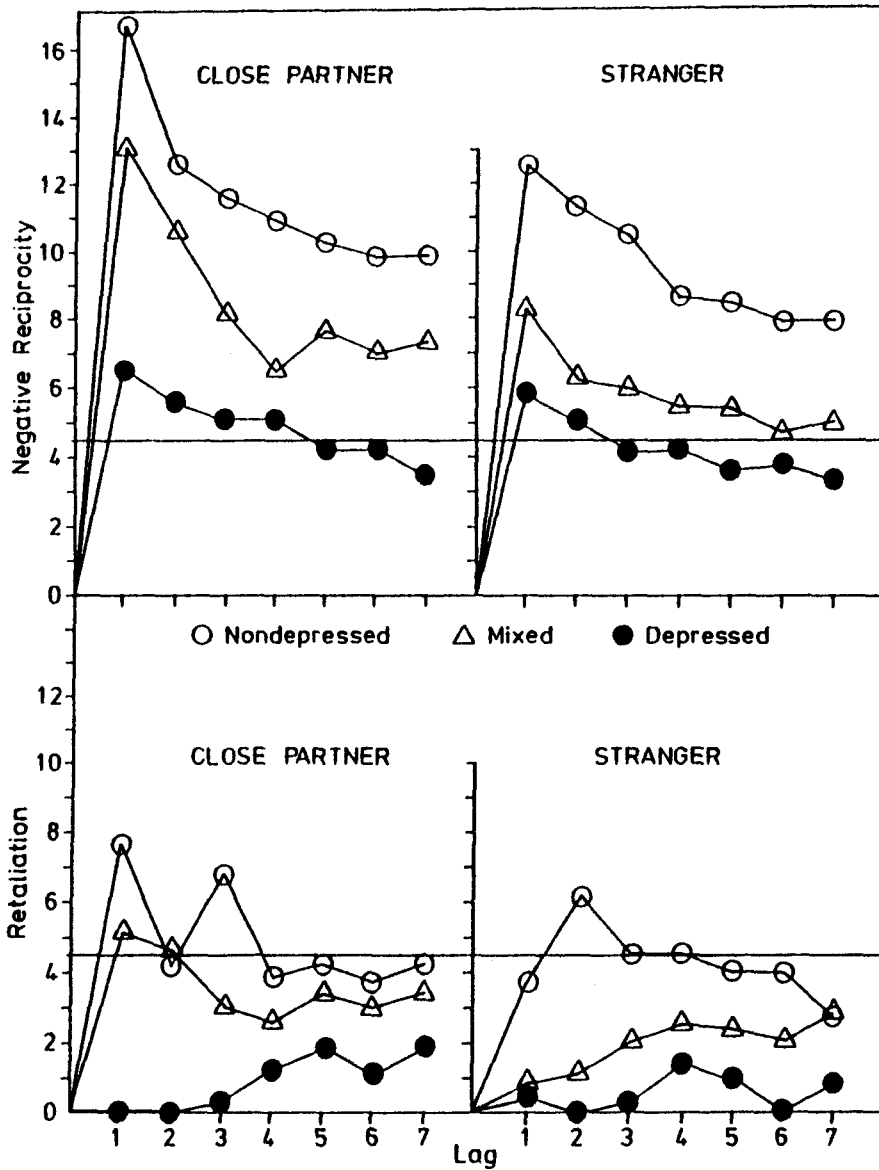
The two-way Depression x Condition ANOVA of the frequency of *avoidance* choices yielded significant Condition and Depression main effects,  $F(1, 31) = 5.64$ ,  $p < .05$ , and  $F(2, 31) = 4.86$ ,  $p < .05$ . Avoidance was more frequent in the stranger than in the partner condition (13.8 vs. 9.14). Depressed, mixed, and nondepressed dyads chose avoidance with descending frequency (17.4 vs. 11.0 vs. 5.1) as predicted, with a significant difference for depressed and nondepressed dyads ( $p < .05$ , Newman-Keuls).

The *negative reciprocity and retaliation* indices (lagged sequential analyses; Bakeman & Gottman, 1986; Gottman, 1987) were calculated for the aggregated data (due to zero variances and resulting small group sizes, individual couple sequential analyses and statistical group comparisons could not be performed; although less conservative (Margolin & Wampold, 1981), the sequential analysis of aggregated data is a frequently used heuristic) in each group under each condition, according to the formula for the standardized residual frequencies:

$SR = (f_o - f_e) / \text{sqrt}(f_e)$  ( $f_o$  observed frequency of conditional event;  $f_e$  expected frequency of event under assumption of independence). Negative reciprocity at lag  $i$  described the likelihood that an agent's defective choice at trial  $t+i$ , given the partner's defective choice at trial  $t$ , was greater than the agent's unconditional likelihood of a defective choice. Retaliation at lag  $i$  described the likelihood that an agent's defective choice at trial  $t+i$ , given both the agent's cooperative and the partner's defective choice at trial  $t$ , was greater than the agent's unconditional likelihood of a defective choice. *Figure 1* depicts the negative reciprocity and retaliation indices for lags 1 through 7 for each of the three subject groups. The horizontal line at 4.4 represents the 5% level of significance according to Cantelli's inequality (cf. Margolin & Wampold, 1981). For all groups, negative reciprocity was substantial and highest at lag 1, descending afterwards. As expected, nondepressed dyads reciprocated most, followed by mixed and depressed dyads. Effects appeared to be most pronounced in the close partner condition. Retaliation was substantial for the nondepressed group at the first four lags, with differing lag patterns for close partner and stranger. Mixed dyads retaliated immediately with their close partner but not with the stranger, whereas depressed dyads' retaliation was nil.

### Discussion

The present 3 x 3 mixed-motive game revealed central characteristics of depressed dyadic interactions, i.e., (a) covert negative feelings of dissatisfaction, disappointment, anger, and helplessness, (b) lack of overt negative reciprocity and retaliation, and (c) overt avoidance behavior. These characteristics were strongest for dyads where both partners were (mildly) depressed but also tended to occur within the mixed dyads. Research is needed to further clarify the mixed dyads' standing with respect to the two remaining groups, addressing dyads where one of the partners is severely rather than mildly depressed, and paying particular attention to the sequential characteristics of the interaction.



**Figure 1.** Indices of negative reciprocity and retaliation behavior (lags 1 to 7) for depressed, mixed, and nondepressed dyads under two experimental conditions (close partner, stranger).

Depressed characteristics emerged in the subjects' interactions with both close partners and alleged strangers. Findings support Coyne's (1985) reasoning that investigations of both may contribute to the knowledge about the interactional maintenance of depression. To clarify their common versus unique contributions, we suggest conducting further studies comparing a partner with a stranger condition. A variety of typical interactions (e.g., different types of mixed-motive games) might be investigated. By having subjects play against different predetermined strategies (e.g., tit-for-tat, cooperative, avoidant), 'stranger' conditions could be systematically varied and compared, yielding insight into preventive or therapeutic strategies to be used in interaction with depressed individuals.



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