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Depressive Symptoms Over Time in Women Partners of Men With and Without Alcohol Problems

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Abstract

In a sample of 202 adult women and their families, the authors examined the effects of their male partners' alcohol problems and antisociality, the women's alcohol problems and antisociality, family conflict, and offspring behavioral problems on the women's depressive symptoms over a 3-year period. The women's antisociality and alcohol problems were more strongly related to family conflict, offspring behavioral problems, and the women's depressive symptoms than were the men's antisociality and alcohol problems. The women's antisociality and family conflict most strongly predicted increases in the women's depressive symptoms over time. In addition, family conflict mediated the effects of maternal antisociality on the women's depressive symptoms.

Keywords

women; depression; alcoholism; antisociality

Much of the research on women partnered with men with alcohol problems has been focused on the women's role in the men's drinking or on the women's drinking behaviors (e.g., Edwards & Steinglass, 1995; Steinglass, 1992). These women face a number of circumstances that could be expected to lead them to have other mental health problems, such as depressive symptoms. In this study, we examined the contributors to depressive symptoms among women partnered with men who do or do not have alcohol problems. Using a life course developmental model, we examine the relative contributions of current family stressors, more distal social environmental characteristics, and prior symptom history in predicting the women's depressive symptoms over time.

Proximal Predictors: Family Stressors Related to Alcohol Problems

Women whose male partners have alcohol problems may experience a number of stressors in their family lives, compared with women whose partners do not have alcohol problems, which

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in turn may contribute to greater depressive symptoms. Their joint offspring tend to have increased levels of negative behavioral and emotional symptoms (Edwards, Leonard, & Das Eiden, 2001; Zucker, Ellis, Fitzgerald, & Bingham, 1996). In addition, increased marital and general family conflicts are often found in families in which the male partner drinks heavily and has alcohol-related problems (Jacob, Leonard, & Haber, 2001; Leonard et al., 2000; O'Farrell, Murphy, Neavins, & Van Hutton, 2000). For example, in an observational paradigm, Haber and Jacob (1997) found that couples in which the husband was an alcoholic exhibited more negativity and less positivity and congeniality in their interactions than did couples in which there was no alcohol use disorders.

In turn, previous studies have shown that family conflict is associated with more depression in women (Christian, O'Leary, & Vivian, 1994; Sandberg & Harper, 2000). In addition, mothers whose offspring have behavioral or emotional problems reported more depressive symptoms (Hammen, Burge, & Stansbury, 1990). Thus, we expected that proximal predictors of the women's depressive symptoms would include marital and family conflict and offspring behavioral and emotional problems. We also expected that these stressors would be elevated in families in which the male partner had alcohol problems, compared with families in which the male partner did not have alcohol problems.

Distal Predictors: History of Psychopathology in the Women

Women partnered with men with alcohol problems are themselves more likely to have a history of heavy use and abuse of alcohol (see review by Wilsnack, 1995). Some data suggest that this connection may be attributed to assortative mating—that is, women who are heavy drinkers or who have an alcohol use disorder are more likely to enter into partnerships with men who are heavy drinkers or who have an alcohol use disorder (Windle, 1997). Heavy alcohol consumption may contribute directly to women's depressive symptoms because alcohol acts as a depressant over time (Wilsnack, 1995).

Women's heavy alcohol use may also contribute indirectly to their depressive symptoms by increasing levels of family conflict and behavioral and emotional problems in their offspring. Women with alcohol or drug problems are more likely to experience marital dissatisfaction (Whisman, Sheldon, & Goering, 2000). Haber and Jacob (1997) observed that alcoholic women were highly negative in interactions with their spouses, particularly when the women were *not* drinking. In addition, maternal alcohol-related problems predict offspring's behavioral and emotional problems (Christensen & Bilenberg, 2000; Dawson, 1992). Thus, women's alcohol use status might be expected to predict their offspring's emotional and behavioral problems and the level of family conflict as well as the women's level of depressive symptoms.

Recent work on stress generation models of depression (e.g., Hammen, 2003) suggest that the women's past history of depression may also play a role in creating more ongoing stress in their lives. Women with a history of depression are more likely to partner with men with psychopathology and to have conflictual interactions with their partners and children (Goodman & Gotlib, 1999; Hammen, 1991). They are also more likely to have children with emotional and behavioral problems (Goodman & Gotlib, 1999). These stressors, in turn, can contribute to more current depression in the women.

Thus, we predicted that women with histories of alcohol problems or depression would have greater levels of family conflict and offspring problems, be more likely to be partnered with men with alcohol problems, and to have more depressive symptoms, compared with women without histories of alcohol problems or depression.

Alcoholism or Antisociality?

Antisociality is often associated with problem alcohol use for both men (Zucker et al., 1996) and women (Helzer, Burnam & McEvoy, 1991). Antisocial men with alcohol problems may generate even more conflict in their relationships with their female partners than nonantisocial men with alcohol problems (Fals-Stewart, Leonard, & Birchler, 2005; Floyd, Cranford, Klotz Daugherty, Fitzgerald, & Zucker, 2006). In an observational experimental paradigm, Jacob, Leonard, and Haber (2001) found that alcohol increased negative and hostile interactions between antisocial alcoholic men and their wives but not between nonantisocial alcoholic men and their wives (see also Ichiyama, Zucker, Fitzgerald, & Bingham, 1996; Murphy & O'Farrell, 1997). In addition, negative emotional and behavioral symptoms are even more common among offspring whose fathers are antisocial alcoholics (Jansen et al., 1995; Zucker et al., 1996). Similarly, although antisocial behavior is less common among women, it is very strongly linked to the presence of alcohol problems (Donovan & Jessor, 1985) and to family stress (Fuller et al., 2003).

In the present study, we examined the relative contributions of alcohol problems and antisociality in the male and female partners to the women's depressive symptoms. We also examined the relationships between family stressors and antisociality versus alcohol problem in the male and female partners.

A Life Course Developmental Framework

Following on earlier work by our group (Zucker, Chermack, & Curran, 2000), we used a developmental cumulation model of risk to evaluate the contributions of distal and proximal individual and environmental contributors to current depression symptoms. We began with the developmentally most distal individual risks (women's depressive history and antisocial history, followed by lifetime alcohol problems). We reasoned that the women's own histories of depression, antisociality, and alcohol problems might contribute to their partnering with men with alcohol problems and antisociality as well as to proximal stressors in their family lives. We then added to the model the male partners' antisociality and alcohol problems, which were potentially active from the beginning of the partnership. Finally, we added family conflict and offspring behavioral problems, the most proximal stressors in the women's lives.

We had several research questions in this study. Are distal or proximal factors more important in predicting the women's depressive symptoms? How were the distal factors related to the current proximal stressors in the women's lives? Were alcohol problems or antisociality more predictive of both the women's current stressors and their depressive symptoms? Was the woman's history of symptoms more or less predictive of her current symptoms than her male partner's history of symptoms?

Method

Participants

Participants were 202 adult women, their male partners, and male offspring, who were in an ongoing longitudinal study of the etiology of alcohol use disorders in families (Zucker, 1987; Zucker et al., 2000). The present set of analyses was based on the first two waves of data spaced approximately 3 years apart. The mean ages of female participants, their male partners, and their male offspring at the first assessment were 30.89 ($SD = 4.09$), 32.98 ($SD = 5.05$), and 4.20 ($SD = .94$) years, respectively. The mean education level for the female and male adults was 13.61 years (i.e., 1 year beyond high school, $SD = 2.11$). The average annual family income was \$36,928 ($SD = \$17,201$).

Recruitment into the study was from three sources that together would provide a range of variation in alcoholism severity, along with its associated characteristics. All sampling was carried out in the four-county area surrounding a medium-sized midwestern city. Two procedures were used for recruitment; one was designed to yield a higher risk sample of alcoholic men and their families and the second was designed to yield an ecologically matched lower risk sample of alcoholic men and their families and a sample of nonalcoholic men and their families.

To access a higher risk subset of alcoholic men, we recruited families of all male convicted drunk drivers with a blood alcohol concentration of 0.15% or higher (0.12% or higher if this was a second or more documented drinking-related legal problem), who had a biological son between the ages of 3 years 0 months and 6 years 0 months currently living with them, and who were living with the boy's biological mother at the time of first contact. The criterion that there be a young son in the family was based on the study's original focus on the development of alcohol-related problems and alcohol use disorder in male children.

At recruitment of this first group of families, a positive diagnosis of an alcohol use disorder in the men was first established through the Short Michigan Alcoholism Screening Test (Selzer, Vinokur, & van Rooijen, 1975) and subsequently verified through the Diagnostic Interview Schedule. All of these men initially met the criteria for either a definite or probable diagnosis of alcoholism by the Feighner criteria (Feighner, Robins, Woodruff, Winokur, & Munoz, 1972) with 88% making a definite diagnosis. This recruitment design allowed us to access a community population of alcoholic families with very heavy consumption, with substantial psychiatric comorbidity, and at an early stage of family development. Alcohol use disorders in the mothers could vary.

A set of control families of lower risk for subsequent youth substance abuse/dependence outcomes but who were ecologically comparable in other ways was obtained by recruiting non-substance-abusing families from the same neighborhoods where the alcoholic families resided. In these families, neither parent made a lifetime diagnosis of either probable or definite alcoholism or drug abuse/dependence. Families were recruited door to door, starting a block away from the alcoholic family, and had at least one child who was within ± 6 months of age of the male target child in the alcoholic families.

A second subset of alcoholic families of lower social visibility was also recruited. Here the father met alcoholism diagnostic and family inclusionary criteria similar to those of the court-recruited alcoholic men, but these men were free of a drunk-driving offense. They were recruited during the same door-to-door community canvass of the neighborhoods where the court-recruited alcoholic men and control families lived and thus were also ecologically comparable with regard to the family's social environment. As with the other alcoholic group, substance abuse in the mothers was not exclusionary. This group of community-recruited alcoholic families offered a useful contrast to the court-obtained alcoholic families. An extensive set of comparisons of the two alcoholic groups has shown that the community-recruited group had less alcohol-related as well as nonalcoholic symptomatology than the court-recruited group (Fitzgerald, Zucker, & Yang, 1995; Zucker et al., 1996). At the same time, on many contrasts, they also were lower in functioning than the nonalcoholic control participants. Thus, their inclusion provided a way to sample intermediate familial risk burden and psychopathology.

Seventy-one percent of respondents interviewed at Time 1 also provided data at Time 2, 3 years later. The sample of 202 families involves all families who had completed Wave 1 and Wave 2.¹ No families were dropped from the study because of separation or divorce or relocation between the two waves.

Procedure

All of the data were collected in a home assessment protocol wherein family members were interviewed and completed questionnaire data working with different interviewers in different rooms. Respondent privacy was ensured before data collection, and response confidentiality was maintained, even within families.

Measures

Depressive symptoms—The Beck Depression Inventory (BDI) (Beck, Steer, & Garbin, 1988) is a widely used measure of depressive symptoms that has been validated through extensive study (Arnau, Meagher, Norris, & Bramson, 2001; Beck et al., 1988). This self-report instrument assesses cognitive, emotional, motivational, and physical manifestations of depression and is available in a long form (21 items) and a short form (13 items). At the time of baseline data collection, the short-form BDI was used, but the long-form BDI was used thereafter.² A meta-analysis of 25 years of data on the BDI yielded internal consistency mean coefficient alphas of .86 for psychiatric patients and .81 for nonpsychiatric individuals (Beck et al., 1988). In this study, the Cronbach's alphas of the BDI items are .76 at Time 1 and .87 at Time 2.

Interviewers completed the 17-item Hamilton Rating Scale for Depression (HRSD) (Hamilton, 1960) for the participants immediately after they conducted a Diagnostic Interview Schedule Version III (DIS; Robins, Helzer, Croughan, & Ratcliff, 1980) with the participants. During this interview, immediately after the Depression section questions, those HSRD items not included in the DIS were asked and were part of the information base for the interviewers' completion of the HSRD. Interviewers were also instructed to use participants' nonverbal behaviors and information spontaneously provided by participants during the interview. The HRSD provides an index of participants' current level of clinical depression as opposed to subjective depression. Interviewers were extensively trained in the use of the HRSD. Scores on the HRSD have been shown to have good reliability and to correlate well with other clinical measures and self-report measures of depressive symptoms (see Shaw, Vallis, & McCabe, 1985). The Cronbach's alpha of the HRSD items is .89 at both Time 1 and Time 2.

The BDI and the HRSD tap different sources of information about participants' depressive symptoms and have different strengths and weaknesses (Nezu, Nezu, McClure, & Zwick, 2002). The BDI represents the participant's subjective sense of depressive symptoms, but results can be influenced by participants' willingness to report symptoms. The HRSD represents clinical interviewers' judgments of the participants' depressive symptoms, but it was designed primarily for use with a severely depressed sample rather than a community sample. So that we could capitalize on the strengths while mitigating the weaknesses of both instruments and to reduce the number of analyses conducted and presented, we standardized these two scales and then averaged them to form a composite index of depressive symptoms. The cross-sectional correlation between the two instruments was .28 at Time 1 and .42 at Time 2 ($p < .001$). We note, however, that conducting the analyses reported here using only BDI

¹Of the Wave 1 sample, 29% were not assessed at Wave 2 by design because of funding limitations (see Zucker et al., 2000, for details), which made it impossible to carry out assessments on approximately one third of the Wave 1 sample. Those who were excluded from the Wave 2 assessments did not differ significantly on any of the variables reported here from those who were included in the Wave 2 assessments. We conducted analyses using two different techniques to handle missing data: (a) we imputed missing data using the expectation-maximization (EM) missing data imputation method (SPSS 11.5, missing data imputation using the EM algorithm) and then analyzed the imputed data; and (b) we analyzed our data with the full information maximum likelihood method (Mplus 3.0). This technique used all available data to generate maximum likelihood-based sufficient statistics. These two sets of new analyses yielded essentially the same results as those reported here. We have chosen to report the analyses using the subsample with full data, rather than the imputed data set, because the amount of missing data in the dependent variable is >15%.

²Using only the short-form items from the BDI at both Wave 1 and Wave 2 in the analyses reported here did not change the pattern of results.

scores, which may be considered the more appropriate measure for this nonclinical sample, led to the same pattern of results.

Depression history—Depression history was measured by the DIS (Robins et al., 1980). This instrument is one of the most widely used structured diagnostic interviews that is used to collect comprehensive information on psychiatric disorders. With it, extensive data on physical, alcohol- and drug-related problems, and mental health are gathered. To obtain information on depression history, questions on clinical depression were examined to determine whether the women in our study were clinically depressed before Time 1. Those who did not have such an experience were given a score of 0 whereas those who were clinically depressed prior to Time 1 were given a score of 1.

Antisociality—The Antisocial Behavior Inventory (ASB; Zucker et al., 1996) was used to assess antisociality in the women and their male partners. The ASB is a 46-item questionnaire that assesses the frequency of aggressive and antisocial activities in both childhood (e.g., lying to parents or being suspended from school for fighting) and adulthood (e.g., being fired for absenteeism, defaulting on a debt, or resisting arrest). Cronbach's alphas for the items are .82 for women and .90 for their male partners.

Alcohol problem—Alcohol problems were measured by the Lifetime Alcohol Problems Score (LAPS; Zucker, 1991; Zucker, Davies, Kincaid, Fitzgerald, & Reider, 1997). The LAPS consists of three components. The first component concerns the primacy of alcohol problems and is indicated by age of first drunkenness (i.e., $100/(\text{age first drunk})$). The second component concerns the variety of alcohol use symptomatology and is assessed by a count of the number of different alcohol-related difficulties that the respondents have encountered at any time during their life. The third component concerns the extent to which any kind of alcohol-related difficulties have been a part of the respondents' life experience and is measured by a life percent index (i.e., $\text{problem drinking years} / [(\text{age most recent problem} - \text{age first problem}) + 1] / \text{respondent's age}^2$). The LAPS was calculated by adding the three component scores together. All sub-scores were standardized within gender before they were summed. A constant of 10 was added to the standardized scores so that all LAPSs are positive numbers (i.e., $\text{LAPS} = 10 + Z_{\text{Component A}} + Z_{\text{Component B}} + Z_{\text{Component C}}$). The LAPS was developed to capture the variations in onset and stability of alcohol problems throughout the life course. It discriminates among a number of alcohol-specific and nonalcohol-specific measures of alcohol-related difficulty, including diagnosis of alcohol dependence, having been in alcohol treatment programs, level of other psychopathology, and measures of family disorganization. We use it here instead of alcohol use disorder diagnostic status because it is, on the one hand, a very effective differentiator of that diagnosis, but, on the other hand, is a continuous variable, allowing a more powerful differentiation of alcoholic symptomatic variation and severity than would the binary diagnostic indicator.

Family functioning—The Moos Family Environment Scale is an empirically based measure of family social environments as perceived by the family members themselves (Moos, 1990). It consists of 10 scales that are used to evaluate dimensions of the family climate. Participants are asked to respond to each statement using a true-false response format. Because previous research has more consistently found relationships between parental alcohol use and hostile, conflictual interactions in families (Jacob et al., 2001), we focused on the Conflict subscale, which assesses the extent of open aggression, anger, and conflicted interactions among family members. In this study, Cronbach's alphas of the Conflict items are .68 for women and .70 for men. We initially ran the analyses reported here separately using the women's reports of family conflict and their male partners' reports of family conflict and found similar patterns of relationships to the women's depressive symptoms. In addition, the ratings of the men and

women were significantly correlated with one another, $r(202) = .50, p < .001$. In the analyses reported here, we averaged the men's and women's ratings of family conflict and used this average in our analyses, reasoning that the averaged index better represented the actuality of the conflict than did either one separately.³

Child Behavior Checklist—Children's behavioral problems were measured by parents' ratings of the Child Behavior Checklist—Parent Version (CBCL; Achenbach, 1991). These behavioral problems include both the internalizing and externalizing domains. The internalizing domain includes items on depression, anxiety, and somatic problems. The externalizing domain includes items on delinquent behavior and aggression. Parents reported their children's problems in the past 6 months using a 3-point rating scale (0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true*). Scores across all items were summed to create a Total Behavioral Problems scale. We used the Total Behavioral Problems scale instead of the separate externalizing and internalizing scales in this study because previous studies using this sample have found that scores on the externalizing and internalizing scales were highly related to each other and similarly associated with parental alcohol use (Wong, Zucker, & Fitzgerald, 2006). Cronbach's alphas for the CBCL total behavioral problem items are .91 for women and .92 for men. We initially ran the analyses reported here separately using the women's CBCL ratings and the male partners' CBCL ratings and found similar patterns of relationships to the women's depressive symptoms. In addition, there was a significant relationship between women and men's ratings of child behavioral problems, $r(202) = .30, p < .001$. Thus, in the analyses reported here, we averaged the men's and women's ratings of family conflict and used this average in our analyses.³

Results

Descriptive Statistics

Zero-order correlations among all the variables, and means and standard deviations for all variables for the entire sample are presented in Table 1, along with the partial correlations between the women's Time 2 depression levels and all the predictor variables, controlling for depression at Time 1. These partial correlations indicate which of the variables measured at Time 1 predicted changes in the women's depressive symptoms from Time 1 to Time 2. The women's LAPS scores and antisocial behavior were significantly correlated with their depression scores at Time 1 and Time 2 and predicted changes in their depression levels from Time 1 to Time 2. The women's history of depression was significantly correlated with their own alcohol problems and antisociality; it was also correlated with their levels of depression at Time 1 and Time 2, although it did not predict changes in depression from Time 1 to Time 2. The women's LAPS and antisocial behavior scores were highly correlated with each other. These results indicate that alcohol problems, antisocial behavior, and depressive symptoms co-occur in women and that alcohol problems and antisocial behavior predict changes in depressive symptoms over time in women.

The male partners' alcohol problems and antisocial behaviors were significantly correlated with the women's Time 1 and Time 2 depression scores, although the correlations were small, and the partial correlations with women's Time 2 depression controlling for Time 1 depression were not significant. It appears that the male partners' alcohol problems and antisociality are not as substantive correlates of the women's depressive symptoms as are the women's alcohol problems and antisociality.

³Analyses using the women's and men's ratings separately are available from the second author.

Family conflict was significantly correlated with both Time 1 and Time 2 depressive symptoms in the women and predicted changes in women's depression from Time 1 to Time 2. Offspring behavioral problems were significantly correlated with women's Time 2 depression but not their Time 1 depression; these problems predicted changes in women's depression from Time 1 to Time 2. These results indicate that both proximal stressors are related to women's depressive symptoms to some degree, but family conflict is a more consistent and stronger predictor. Family conflict and offspring behavior problems were also consistently significantly correlated with both the women's and men's alcohol problems and antisocial behaviors.

Regression Analyses

Hierarchical (sequential) multiple regression was used to test our life course model of change in women's depression from Time 1 to Time 2. Table 2 shows the unstandardized regression coefficients, their standard errors, the standardized regression coefficients, computed values of *t* tests, multiple correlations squared, and changes in multiple correlations squared after each block of variables was entered.

We entered Time 1 depression in Step 1, as we were interested in whether the distal and proximal predictors account for the change in depression from Time 1 to Time 2. As seen in Table 2, Time 1 depression accounted for about 28% of the variance of Time 2 depression ($R^2 = .28$, $F_{\text{inc}}(1, 200) = 76.77$, $p < .001$). In Step 2, we entered history of depression and antisocial behavior in the model, reasoning that these are the most distal (i.e., potentially dating back in history the longest) predictors of women's current depression. After controlling for Time 1 depression, history of depression did not have a significant relationship with Time 2 depression. However, history of antisocial behavior significantly predicted Time 2 depression. As indicated in Table 2, R^2 significantly improved after the addition of these two variables ($R^2 = .32$, $F_{\text{inc}}(2, 198) = 6.41$, $p < .01$). Because history of depression was nonsignificant, the increment in this value was due to history of antisocial behavior. In Step 3, we entered the women's alcohol problems (LAPS) scores, reasoning that these too are distal predictors (although perhaps not as distal as the women's histories of depression and antisociality, which by definition could have begun early in childhood, whereas drinking behavior is less likely to have begun as early). Women's alcohol problems did not have a significant relationship with their Time 2 depression, and there was no significant increment in R^2 ($R^2 = .33$, $F_{\text{inc}}(1, 197) = 1.28$, $p = .26$). In Step 4, men's antisocial behavior and lifetime alcohol problems were added to the model. Neither variable significantly improved the prediction ($R^2 = .33$, $F_{\text{inc}}(2, 195) = .03$, $p = .97$). In Step 5, average ratings of family conflict were entered as a predictor. This variable significantly predicted Time 2 depression above and beyond the effects of other variables ($R^2 = .36$, $F_{\text{inc}}(1, 194) = 9.25$, $p < .01$). Finally, in Step 6, average ratings of child behavioral problems were entered in the model. The addition of this variable did not improve the prediction ($R^2 = .36$, $F_{\text{inc}}(1, 193) = .32$, $p = .57$).

Thus, the women's Time 1 depressive symptoms, history of antisocial behavior, and family conflict remained significant predictors of Time 2 depression when other variables were added to the model. Theoretically, the women's lifetime history of antisociality may have contributed to more family conflict at T1, which in turn contributed to increases in depressive symptoms in the women from T1 to T2. This finding suggests that family conflict may at least partially mediate the relationship between the women's antisociality and their depression levels. We used the Sobel (1982) test to determine whether family conflict significantly mediated the effect of women's antisociality on their Time 2 depression scores, controlling for their Time 1 depression scores and found that it did, $z = 2.45$, $p < .05$. Women's antisociality still remained a significant predictor of women's Time 2 depression, even after controlling for family conflict and women's Time 1 depression, $\beta = .17$, $p < .01$, indicating that family conflict only partially mediated this relationship.

Discussion

We tested a life course developmental model of the effects of distal and proximal factors on depression levels in women who were and were not partnered with men with alcohol problems. We organize the discussion of our results around our main research questions.

What Are the Relative Relationships Between Distal and Proximal Factors and Women's Depressive Symptoms?

Distal factors such as the woman's own histories of psychopathology symptoms were expected to predict women's current levels of depression in part because they indicate a vulnerability to symptoms. We found that the women's histories of alcohol problems, antisociality, and depression were intercorrelated, indicating that these types of problems co-occur in women. Alcohol problems and antisociality were especially highly correlated with each other, as has been found in previous studies (Donovan & Jessor, 1985; Grant et al., 2004). In turn, women with a history of depression, alcohol problems, and particularly antisociality, had more depressive symptoms at both assessments in this study, and alcohol problems and antisociality predicted increases in the women's depression over time in the partial correlations.

A history of psychopathology may also set the stage for current depression in women by leading to more "dependent" stressors in the women's lives—negative circumstances brought about, in part, by the woman's symptoms (Hammen, 1991). We found that women with histories of alcohol problems and antisociality were more likely to be partnered with men who had alcohol problems and antisociality. This is in line with previous studies of assortative mating by alcoholic women (Windle, 1997) and extends this finding to the antisociality domain. In turn, women whose male partners had more alcohol problems or antisociality reported more depressive symptoms at both assessments. These relationships were small, however, and the male partners' symptoms did not predict changes in the women's depression levels over time.

The most proximal potential contributors to the women's depression were family conflict and offspring behavioral problems. Both of these variables were related to women's depressive symptoms to some degree and predicted change in depressive symptoms over time in the partial correlations. Family conflict was a more consistent and stronger predictor of women's depression over time than offspring behavioral problems, however. This may be because family conflict is a pervasive characteristic of the women's lives, including not only stresses created by the presence of behavioral problems in their children but also stresses occurring in interactions with their partners.

How Were the Distal Factors Related to the Current Proximal Stressors in the Women's Lives?

Higher levels of family conflict and offspring behavior problems were found in families in which either the mother or father had high levels of alcohol problems or antisocial behavior. Recent studies suggest a substantial role for genetics in the transmission of both alcohol use disorders and antisocial personality disorder from parents to children (Kendler, Prescott, Myers, & Neale, 2003), and the associations between parental psychopathology and offspring behavioral problems observed here may have genetic roots.

Parents who are antisocial or have alcohol problems or both also appear to create more conflict in their families and negative interactions with their children (Fuller et al., 2003), which could have contributed to the observed associations. In this study, family conflict significantly mediated the relationship between women's antisociality and changes in their depression scores, suggesting that women's antisocial behaviors may create more family conflict, which in turn contributes to more depressive symptoms in the women.

Given that family conflict and maternal antisocial behaviors were measured at the same assessment point, we cannot know that maternal antisociality temporally preceded family conflict. Our measure of maternal antisociality, however, includes lifetime experiences of antisocial behaviors and their consequences, with many questions about childhood experiences. Thus, it seems more plausible that women's lifetime history of antisociality is contributing to more conflict in their families than that family conflict is creating a lifetime history of antisociality in the women.

An interesting finding is that the mother's history of depression did not predict her offspring's behavioral problems, contradicting findings from some previous studies (Goodman & Gotlib, 1999). Mothers' current levels of depression were associated with offspring behavioral problems, however. In a recent study of 1,116 twin pairs, Kim-Cohen, Moffitt, Taylor, Pawlby, and Caspi (2005) found that maternal depression occurring before the twins' births did not predict behavioral problems in the twins, but maternal depression occurring in the first 5 years of the twins' lives showed a significant dose-response relationship with offspring behavioral problems at 7 years of age. In addition, the combination of depression and antisocial symptoms in mothers posed the greatest risk for children's behavioral problems. Although the focus of the current analyses was not the prediction of offspring behavioral problems, our patterns of relationships between current maternal depression, maternal history of depression and antisociality, and their offspring's behavioral problems is in line with the findings by Kim-Cohen and colleagues.

Were Alcohol Problems or Antisociality More Predictive of the Women's Depressive Symptoms?

Both the women's antisociality and their alcohol problems were significant predictors of changes in the women's depressive symptoms in the partial correlations. Antisociality was the stronger of these two, however, remaining a significant predictor of changes in women's depression levels when alcohol problems were added to the regression model. These results add to a growing body of evidence (Fals-Stewart et al., 2005; Zucker et al., 1996) that antisociality may be more predictive of negative outcomes than alcohol problems alone and extend this body of evidence in two ways. First, because our sample is women, our results provide a relatively rare glimpse of the lives and symptoms of women with antisocial tendencies, whereas the vast majority of the literature on antisociality focuses on men. Second, our results show that depressive symptoms may be a common problem for women with antisocial tendencies. Verona, Sachs-Ericsson, and Joiner (2004) found that externalizing symptoms predicted suicide attempts in women as strongly as they did in men and that for women suicide attempts were most strongly related to comorbid externalizing and internalizing symptoms. Our results together with those of Verona and colleagues suggest that it may be important to assess and intervene with depressive symptoms in women with antisocial tendencies.

Was the Woman's History of Symptoms More or Less Predictive of Her Current Symptoms Than Her Male Partner's History of Symptoms?

Although we initiated the analyses reported here to examine the effects on women's well-being of being partnered with men with alcohol problems, the male partners' alcohol problems and antisociality were only slightly correlated with the women's depression scores and were not significant predictors of changes in the women's depression. Instead, it was the women's own histories of alcohol problems and antisociality that consistently predicted their levels of depression.

This pattern could be due in part to respondent effects, because the assessments of antisociality and alcohol problems were self-reports, as was one of the two assessments of depression in the

women. When we examined the relationships between the self-report versus clinician-rated measures of women's depression and the measures of antisociality and alcohol problems in the women and men, however, the women's antisociality and alcohol problems were more highly correlated with both depression measures than the men's antisociality and alcohol problems. Similarly, the women's antisociality and alcohol problems were more highly correlated with family conflict and child behavioral problems than were the men's antisociality and alcohol problems. The results of the regression analyses reported here, however, were not different if we used the women's and men's ratings of family conflict and child behavior problems separately.

Thus, it appears that women's alcohol problems and especially their tendencies toward antisociality are more predictive of family conflict and perhaps child behavior problems than the men's alcohol problems and antisociality. Women spend more time with their children and have greater responsibility for their well-being than men (Fitzgerald, Zucker, Maguin, & Reider, 1994). In turn, children may be more reactive to psychopathology symptoms in their mothers than in their fathers, particularly during the late preschool to kindergarten period during which our child data were collected.

Limitations

We have already noted that there are limitations to the interpretation of our mediational analysis because both maternal antisociality and family conflict were measured at the same time. Similarly, the fact we only had two waves of data limited our ability to observe patterns of relationships that emerge over longer periods of time and more assessments.

The sample used for this study is not a random, representative community sample, but it is more useful and economical for addressing our research questions than a community sample would be. The problem with general population studies is that the variables of interest are represented with such low frequency that the ability to detect interactions is compromised. Our sampling procedure provided a set of families who vary substantially on factors associated with alcoholic risk (Zucker & Gomberg, 1986) and that are likewise associated with known alcoholic heterogeneity (Zucker, Fitzgerald, & Moses, 1995). The fact that a population net was used to generate the alcoholic group has eliminated biases associated with the use of treatment settings as recruitment sites (Berkson's bias; Grant, 1996; Weisner, Schmidt, & Tam, 1995). At the same time, not all drunk drivers are apprehended or go to court. Thus, there is some bias toward a socioeconomically less well functioning group that finds its way into the public disposition system (i.e., those who plea bargained or were able to avoid the conviction entirely are not represented). This bias is not present in the community alcoholic group. The more general point is that the study involves a composite sample that encompasses the spectrum of risk for clinical and social variation that is known to occur with alcohol use disorder.

Conclusions

Women partnered with men who have alcohol problems have elevated levels of depressive symptoms. Their depressive symptoms appear to be more closely tied to the women's own histories of alcohol problems and antisociality than to their partner's alcohol problems and antisociality, however. In addition, family conflict and to a lesser degree their children's behavioral problems are associated with increases in depressive symptoms over time in these women. Our results suggest that interventions for women would benefit from a focus on their family environment and on comorbid symptoms of depression, antisociality, and alcohol abuse.

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References

- Achenbach, T. Manual for the Child Behavior Checklist/4–18 and 1991 profile. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
- Arnau RC, Meagher MW, Norris MP, Bramson R. Psychometric evaluation of the Beck Depression Inventory-II with primary care medical patients. *Health Psychology* 2001;20:112–119. [PubMed: 11315728]
- Beck AT, Steer RA, Garbin MG. Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review* 1988;8:77–100.
- Christensen HB, Bilenberg N. Behavioural and emotional problems in children of alcoholic mothers and fathers. *European Child and Adolescent Psychiatry* 2000;9:219–226. [PubMed: 11095045]
- Christian JL, O'Leary KD, Vivian D. Depressive symptomatology in maritally discordant women and men: The role of individual and relationship variables. *Journal of Family Psychology* 1994;8:32–42.
- Dawson DA. The effect of parental alcohol dependence on perceived children's behavior. *Journal of Substance Abuse* 1992;4:329–340. [PubMed: 1294276]
- Donovan JE, Jessor R. Structure of problem behavior in adolescence and young adulthood. *Journal of Consulting and Clinical Psychology* 1985;53:890–904. [PubMed: 4086689]
- Edwards EP, Leonard KE, Das Eiden R. Temperament and behavioral problems among infants in alcoholic families. *Infant Mental Health Journal* 2001;22:374–392.
- Edwards ME, Steinglass P. Family therapy treatment outcomes for alcoholism. *Journal of Marital and Family Therapy* 1995;21:475–509.
- Fals-Stewart W, Leonard KE, Birchler GR. The occurrence of male-to-female intimate partner violence on days of men's drinking: The moderating effects of antisocial personality disorder. *Journal of Consulting and Clinical Psychology* 2005;73:239–248. [PubMed: 15796631]
- Feighner JP, Robins S, Woodruff RA, Winokur G, Munoz R. Diagnostic criteria for use in psychiatric research. *Archives of General Psychiatry* 1972;26:57–63. [PubMed: 5009428]
- Fitzgerald HE, Zucker RA, Maguin ET, Reider EE. Time spent with child and parental agreement about preschool children's behavior. *Perceptual and Motor Skills* 1994;79:336–338. [PubMed: 7991327]
- Fitzgerald HE, Zucker RA, Yang HY. Developmental systems theory and alcoholism: Analyzing patterns of variation in high risk families. *Psychology of Addictive Behaviors* 1995;9:8–22.
- Floyd FJ, Cranford JA, Klotz Daugherty M, Fitzgerald HE, Zucker RA. Marital interaction in alcoholic and nonalcoholic couples: Alcoholic subtype variations and wives' alcoholism status. *Journal of Abnormal Psychology* 2006;115:121–130. [PubMed: 16492103]
- Fuller BE, Chermack ST, Cruise KA, Kirsh E, Fitzgerald HE, Zucker RA. Predictors of aggression across three generations among sons of alcoholics: Relationships involving grandparental and parental alcoholism, child aggression, marital aggression and parenting practices. *Journal of Studies on Alcohol* 2003;64:472–483. [PubMed: 12921189]
- Goodman S, Gotlib I. Risk for psychopathology in the children of depressed mothers: A developmental model for understanding mechanisms of transmission. *Psychological Bulletin* 1999;106:458–490.
- Grant BF. Toward an alcohol treatment model: A comparison of treated and untreated respondents with *DSM-IV* alcohol use disorders in the general population. *Alcoholism: Clinical and Experimental Research* 1996;20:372–378.
- Haber JR, Jacob T. Marital interactions of male versus female alcoholics. *Family Process* 1997;36:385–402. [PubMed: 9543660]
- Hamilton M. A rating scale for depression. *Journal of Neurology, Neurosurgery & Psychiatry* 1960;23:56–61.
- Hammen C. The generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology* 1991;100:555–561. [PubMed: 1757669]
- Hammen C. Interpersonal stress and depression in women. *Journal of Affective Disorders* 2003;74:49–57. [PubMed: 12646298]

- Hammen C, Burge D, Stansbury K. Relationship of mother and child variables to child outcomes in a high-risk sample: A causal modeling analysis. *Developmental Psychology* 1990;26:24–30.
- Helzer, JE.; Burnam, A.; McEvoy, LT. Alcohol abuse and dependence. In: Robins, LN.; Regier, DA., editors. *Psychiatric disorders in America: The Epidemiologic Catchment Area studies*. New York: Free Press; 1991. p. 81-115.
- Ichiyama MA, Zucker RA, Fitzgerald HE, Bingham CR. Articulating subtype differences in self and relational experience among alcoholic men via structural analysis of social behavior. *Journal of Consulting and Clinical Psychology* 1996;64:1245–1254. [PubMed: 8991311]
- Jacob T, Leonard KE, Haber JR. Family interactions of alcoholics as related to alcoholism type and drinking condition. *Alcoholism: Clinical and Experimental Research* 2001;25:835–843.
- Jansen RE, Fitzgerald HE, Ham HP, Zucker RA. Pathways into risk: Temperament and behavior problems in three- to five-year-old sons of alcoholics. *Alcoholism: Clinical and Experimental Research* 1995;19:501–509.
- Kendler KS, Prescott CA, Myers J, Neale MC. The structure of genetic and environmental risk factors for common psychiatric and substance use disorders in men and women. *Archives of General Psychiatry* 2003;60:929–937. [PubMed: 12963675]
- Kim-Cohen J, Moffitt TE, Taylor A, Pawlby SJ, Caspi A. Maternal depression and children's antisocial behavior: Nature and nurture effects. *Archives of General Psychiatry* 2005;62:173–181. [PubMed: 15699294]
- Leonard KE, Das Eiden R, Wong MM, Zucker RA, Puttler LI, Fitzgerald HE, et al. Developmental perspectives on risk and vulnerability in alcoholic families. *Alcoholism: Clinical and Experimental Research* 2000;24:238–240.
- Moos RH. Conceptual and empirical approaches to developing family-based assessment procedures: Resolving the case of the Family Environment Scale. *Family Process* 1990;29:199–208. [PubMed: 2373215]
- Murphy CM, O'Farrell TJ. Couple communication patterns in maritally aggressive and nonaggressive male alcoholics. *Journal of Studies on Alcohol* 1997;58:83–90. [PubMed: 8979216]
- Nezu, AM.; Nezu, CM.; McClure, KS.; Zwick, ML. Assessment of depression. In: Gotlib, IH.; Hammen, CL., editors. *Handbook of depression*. New York: Guilford Press; 2002. p. 61-85.
- O'Farrell TJ, Murphy CM, Neavins TM, Van Hutton V. Verbal aggression among male alcoholic patients and their wives in the year before and two years after alcoholism treatment. *Journal of Family Violence* 2000;15:295–310.
- Robins, L.; Helzer, J.; Croughan, J.; Ratcliff, KS. *The NIMH diagnostic interview schedule: Its history, characteristics and validity*. St. Louis, MO: Washington University School of Medicine; 1980.
- Sandberg JG, Harper JM. In search of a marital distress model of depression in older marriages. *Aging & Mental Health* 2000;4:210–222.
- Selzer ML, Vinokur A, van Rooijen L. A self-administered Short Michigan Alcoholism Screening Test (SMAST). *Journal of Studies on Alcohol* 1975;36:117–126. [PubMed: 238068]
- Shaw, BF.; Vallis, TM.; McCabe, SB. The assessment of the severity and symptom patterns in depression. In: Beckham, EE.; Leber, WR., editors. *Handbook of depression: Treatment, assessment, and research*. Homewood, IL: Dorsey Press; 1985. p. 372-407.
- Sobel, ME. Asymptotic confidence intervals for indirect effects in structural equation models. In: Leinhardt, S., editor. *Sociological methodology* 1982. Washington, DC: American Sociological Association; 1982. p. 290-312.
- Steinglass, P. Family systems approaches to the alcohol family: Research findings and the clinical implications. In: Saitoh, S., editor. *Alcoholism and the family*. Philadelphia: Brunner/Mazel; 1992. p. 155-171.
- Verona E, Sachs-Ericsson N, Joiner TE Jr. Suicide attempts associated with externalizing psychopathology in an epidemiological sample. *American Journal of Psychiatry* 2004;161:444–451. [PubMed: 14992969]
- Weisner C, Schmidt L, Tam T. Assessing bias in community-based prevalence estimates: Towards an unduplicated count of problem drinkers and drug users. *Addiction* 1995;90:391–405. [PubMed: 7735023]

- Whisman MA, Sheldon CT, Goering P. Psychiatric disorders and dissatisfaction with social relationships: Does type of relationship matter? *Journal of Abnormal Psychology* 2000;109:803–808. [PubMed: 11196008]
- Wilsnack, S. Alcohol use and alcohol problems in women. In: Stanton, AL.; Gallant, SJ., editors. *The psychology of women's health*. Washington, DC: American Psychological Association; 1995. p. 381-443.
- Windle M. Mate similarity, heavy substance use, and family history of problem drinking among young adult women. *Journal of Studies on Alcohol* 1997;58:573–580. [PubMed: 9391916]
- Wong MM, Zucker RA, Fitzgerald HE. Developmental trajectories of internalizing and externalizing problems in sons of alcoholics: Effects of parent psychopathology, parent daily negative affect, and child temperament. 2006Manuscript submitted for publication
- Zucker, RA. The four alcoholisms: A developmental account of the etiologic process. In: Rivers, PC., editor. *Alcohol and addictive behaviors: Nebraska symposium on motivation*, 1986. Lincoln, NE: University of Nebraska Press; 1987. p. 27-83.
- Zucker RA. Scaling the developmental momentum of alcoholic process via the Lifetime Alcohol Problems Score. *Alcohol and Alcoholism* 1991;(Suppl 1):505–510. [PubMed: 1804130]
- Zucker, RA.; Chermack, ST.; Curran, GM. Alcoholism: A lifespan perspective on etiology and course. In: Sameroff, AJ.; Lewis, M.; Miller, SM., editors. *Handbook of developmental psychopathology*. 2. New York: Plenum Press; 2000. p. 569-587.
- Zucker RA, Davies WH, Kincaid SB, Fitzgerald HE, Reider EE. Conceptualizing and scaling the developmental structure of behavior disorder: The lifetime alcohol problems score as an example. *Development and Psychopathology* 1997;9:453–471. [PubMed: 9201452]
- Zucker RA, Ellis DA, Fitzgerald HE, Bingham CR. Other evidence for at least two alcoholism. II. Life course variation in antisociality and heterogeneity of alcoholic outcome. *Development & Psychopathology* 1996;8:831–848.
- Zucker, RA.; Fitzgerald, HE.; Moses, HD. Emergence of alcohol problems and the several alcoholisms: A developmental perspective on etiologic theory and life course trajectory. In: Cicchetti, D.; Cohen, DJ., editors. *Developmental Psychopathology: Vol 2, Risk, disorder and adaptation*. New York: Wiley; 1995. p. 677-711.
- Zucker, RA.; Fitzgerald, HE.; Refior, SK.; Puttler, LI.; Pallas, DM.; Ellis, DA. The clinical and social ecology of childhood for children of alcoholics: Description of a study and implications for a differentiated social policy. In: Fitzgerald, HE.; Lester, BM.; Zuckerman, BS., editors. *Children of addiction: Research, health and policy issues*. New York: Routledge Falmer; 2000. p. 109-141.
- Zucker RA, Gomberg ESL. Etiology of alcoholism reconsidered: The case for a biopsychosocial process. *American Psychologist* 1986;41:783–793. [PubMed: 3527004]

Table 1
Means, Standard Deviations, and Zero-Order Correlations for All Variables (N = 202)

Variable	1	2	3	4	5	6	7	8	9
1. Time 1 alcoholism severity scores (LAPS)—women	—								
2. Time 1 alcoholism severity scores (LAPS)—men	.36***	—							
3. Time 1 antisocial behavior—women	.64***	.37***	—						
4. Time 1 antisocial behavior—men	.25***	.61***	.36***	—					
5. Time 1 family conflict	.31***	.21**	.35***	.29***	—				
6. Time 1 child behavioral problems	.43***	.37***	.45***	.31***	.31***	—			
7. Depression history—women	.16*	.02	.15*	.01	.01	.11	—		
8. Time 1 depression—women	.25***	.15*	.31***	.16*	.31***	.13	.28**	—	
9. Time 2 depression—women	.29***	.17*	.36***	.17*	.38***	.23**	.17*	.53***	—
Partial <i>r</i> with Time 2 depression ^a	.21**	.11	.25**	.10	.27***	.19**	.02		
<i>M</i>	9.94	9.90	10.45	16.48	3.61	3.47	28.13	3.11	.03
<i>SD</i>	1.71	2.57	6.89	10.87	2.08	1.82	11.75	.77	.87

^aPartial correlation with women's Time 2 depression, controlling for their Time 1 depression scores.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

Table 2
 Hierarchical (Sequential) Regression of Distal and Proximal Predictors on Change in Women's Depression

	<i>B</i> (<i>SE</i>)	β	<i>t</i>	<i>R</i> ²	<i>R</i> ² change
Step 1					
Time 1 depression	.60 (.05)	.53	8.76 ^{***}	.28 ^{***}	
Step 2					
History of depression	.00 (.11)	.01	.12	.32 ^{***}	.04 ^{**}
History of ASB	.03 (.01)	.22	3.56 ^{***}		
Step 3					
LAPS	.04 (.04)	.09	1.13	.33 ^{***}	.01
Step 4					
Men's ASB	.00 (.01)	.01	.16	.33 ^{***}	.00
Men's LAPS	.00 (.03)	.01	.08		
Step 5					
Family conflict	.10 (.03)	.20	3.04 ^{**}	.36 ^{***}	.03 ^{**}
Step 6					
Child behavioral problems	.00 (.01)	.04	.56	.36 ^{***}	.00

Note. ASB = Antisocial Behavior Inventory; LAPS = Lifetime Alcohol Problems Score.

**
 $p \leq .01$.

 $p \leq .001$.