



## Short communication

# Husbands' SUD is associated with higher levels of co-occurring but not non-co-occurring psychiatric disorders among their wives <sup>☆</sup>

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## ABSTRACT

**Objective:** Substance use among husbands has been shown to be associated with higher rates of substance use and of psychiatric symptoms among their wives. However, substance use disorders (SUD) and psychiatric disorders (as opposed to substance use or psychiatric symptoms) are rarely rigorously assessed among large samples of couples, so it is unclear whether SUD among husbands are associated with SUD among their wives, and whether the wives also display a higher prevalence of co-occurring or non-co-occurring psychiatric disorders. We compared the level of SUD, of co-occurring (with SUD) psychiatric disorders, and of non-co-occurring psychiatric diagnoses among the wives of males with SUDs vs among the wives of males without SUDs. We hypothesized that the presence of SUDs among males would be associated with a higher level of SUDs, of co-occurring psychiatric disorders, and of non-co-occurring psychiatric disorders in their wives.

**Method:** The subjects in this study were the spouses of adult men with a lifetime history of an SUD (SUD+ husbands,  $N=342$ ) vs those with no lifetime history of an SUD (SUD- husbands,  $N=350$ ). These subjects were recruited for participation in a longitudinal project designed to elucidate the etiology of substance use disorders.

**Results:** Co-occurring SUDs were five times more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands (10.2% vs 2.0%, chi-square=19.7,  $p=0.000$ ). SUD/depressive disorder and SUD/anxiety disorder were both seven times more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands (19.4% vs 4.7%, chi-square=45.8,  $p=0.000$ ; 14.3% vs 2.0%, chi-square=34.5,  $p=0.000$ ). In contrast, non-co-occurring depressive disorders and non-co-occurring anxiety disorders were not more common among the wives of the SUD+ husbands than among the SUD- husbands.

**Conclusions:** These findings demonstrate that SUD and co-occurring psychiatric disorders (with SUD) are more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands, but non-co-occurring ("pure") psychiatric disorders are not more common among the spouses of the SUD+ husbands.

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## 1. Introduction

For many people, the relationship that they develop with their spouse or partner will be the most important relationship that they develop during their lifetime. Consequently, these relationships are likely to be an important factor in mental health and well-being (Whisman, 2006). Marriage has been shown to generally result in a lowering of substance use by both partners (Bachman,

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Wadsworth, O'Malley, Johnston & Schulenberg, 1997; Brook, Richter, Whiteman & Cohen, 1999). However, substance use in husbands has been shown to be associated with a higher rate of substance use and of psychiatric and behavioral symptoms among their wives (Degenhardt, Hall, & Lynskey, 2003; Homish, Leonard & Cornelius, 2007; Homish, Leonard & Cornelius, 2008). Substance use disorders among husbands have been reported to be strongly associated with SUD and with psychiatric disorders such as depressive disorders and anxiety disorders among their wives (Clark, Cornelius, Wood, Vanyukov, 2004). However, those analyses did not distinguish disorders occurring with SUDs (i.e. co-occurring disorders) from those occurring without SUDs. Therefore, it is unclear as to what extent the presence of an SUD among husbands is associated with a higher prevalence of co-occurring vs non-co-occurring psychiatric disorders among their wives. For example, it is unclear whether the higher prevalence of depressive disorders among the wives of men with SUD occurs only among the wives with a drug or alcohol disorder, or whether a higher prevalence of depressive disorders also occurs among the wives who do not display a drug or alcohol use disorder. That difference in co-occurring vs non-co-occurring symptom patterns has implications for helping to explain the mechanism underlying the higher levels of psychopathological disorders among the wives.

In this study, we compared the level of co-occurring (with SUD) psychiatric disorders and of non-co-occurring psychiatric diagnoses among the wives of males with and without SUDs. We hypothesized that the presence of SUDs among the husbands would be associated with higher levels of co-occurring psychiatric disorders among their wives and would also be associated with higher levels of non-co-occurring psychiatric disorders among their wives. The hypothesis that even non-co-occurring disorders would occur at a higher rate among wives of husbands with SUD was based on the assumption that evocative transactions, such as husbands' substance use problems may create a context in which other non-specific psychiatric disorders emerge among the wives.

## 2. Method

The study design has been extensively described in multiple recent papers (Clark et al., 2004; Cornelius, Clark, Reynolds, Kirisci & Tarter, 2007), including comprehensive descriptions of the participants, recruitment procedures, research procedures, research instruments, rater training, inter-rater reliabilities, and data analyses. Consequently, only the major methodological points will be mentioned in this section.

Prior to participation in the study, written informed consent was obtained from husbands and wives, and assent was obtained from minor children, though children were not the focus of the current study. The study was approved by the University of Pittsburgh Institutional Review Board. Approximately 89% of the families were recruited from the community through public service announcements and advertisements as well as by direct telephone contact conducted by a market research firm, and 11% were recruited from clinical sources (Cornelius et al., 2007; Cornelius et al., 2008).

Assessments were comprehensive in scope, and included reports on alcohol and other substance history, SUD other mental disorders, personality assessments, and measures of family, cognitive, and psychosocial functioning (Vanyukov, Neale, Moss Tarter, 1996; Clark et al., 2004). Diagnostic evaluation of the subjects was conducted with an expanded version of the Structured Clinical Interview for DSM-III-R (SCID) (Spitzer, Williams & Gibbon, 1987), which was the most recent DSM edition when the study was initiated. Diagnoses were determined in a consensus conference using the best estimate diagnostic procedure (Kosten & Rounsaville, 1992). For this study, the term depressive disorder was defined to include major depressive disorder, depressive disorder NOS, and dysthymic disorder. For this study, the term anxiety disorders were defined to include panic disorder, generalized anxiety disorder, phobic disorder, obsessive compulsive disorder, separation anxiety disorder, overanxious disorder, avoidance disorder of childhood, and post-traumatic stress disorder.

The subjects in this study were the spouses of adult men with a lifetime history of an SUD (SUD+ husbands,  $N=342$ ) vs those with no lifetime history of an SUD (SUD- husbands,  $N=350$ ). The sample consisted of 76.2% Euro-Americans, 22.5% African-Americans, and 0.8% other. The mean age of these subjects was 37.9 years ( $\pm 4.9\%$ ). Of those in the sample, 81.3% were married, and 66.3% were employed.

## 3. Results

All substance use disorders (SUDs), including both those with co-occurring disorders and those without co-occurring disorders, were 6.4 times more common among the wives of SUD+ husbands than among the wives of SUD- husbands (33.1% vs 5.2%, chi-square=85.9,  $p=0.000$ ) (see Table 1). All alcohol use disorders (AUDs), including both those with co-occurring disorders and those without co-occurring disorders, were 3.6 times more common among the wives of SUD+ husbands than among the wives of SUD- husbands (31.6% vs 8.7%, chi-square=55.7,  $p=0.000$ ). The wives of SUD+ husbands were 4.0 times more likely than the wives of SUD- husbands to display an alcohol use disorder or a substance use disorder or both (42.4% vs 10.5%, chi-square=89.4,  $p=0.000$ ). The subgroup of wives who displayed an SUD in combination with a depressive disorder (SUD/depressive disorder) were 7.1 times more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands (18.5% vs 2.6%, chi-square=45.8,  $p=0.000$ ). The subgroup of wives who displayed an SUD in combination with an anxiety disorder (SUD/anxiety disorder) were 7.2 times more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands (14.3% vs 2.0%, chi-square=34.5,  $p=0.000$ ). In contrast, non-co-occurring depressive disorders and non-co-occurring anxiety disorders were not more common among the wives of the SUD+ husbands than among the SUD- husbands. For example, non-co-occurring depressive disorder was present in 10.2% of spouses of SUD+ husbands, and in 16.6% of SUD- husbands (chi-square=6.03,  $p=0.14$ ).

**Table 1**  
Pattern of SUD and psychiatric disorders in wives of substance abusing and non-substance abusing husbands

Variable	Spouses of SUD+ husbands	Spouses of SUD- Husbands	$\chi^2$	<i>p</i>
Alcohol use disorder	31.6%	8.7%	55.7	0.000
Illicit drug use disorder	33.1%	5.2%	85.9	0.000
Either alcohol or drug use disorder	42.4%	10.5%	89.4	0.000
SUD/depressive disorder	18.5%	2.6%	45.8	0.000
SUD/anxiety disorder	14.3%	2.0%	34.5	0.000
Depressive disorder w/out SUD/AUD	10.2%	16.6%	6.0	0.140
AUD/depressive disorder	19.4%	4.7%	35.1	0.000
AUD/anxiety disorder	14.0%	3.8%	34.5	0.000

Co-occurring alcohol use disorders (AUDs) were also three to four times more prevalent among the spouses of SUD+ husbands than among the spouses of SUD- husbands. Specifically, AUD/depressive disorders were 4.1 times more prevalent among the spouses of SUD+ husbands than among the spouses of SUD- husbands (19.4% vs 4.7%, chi-square = 35.1,  $p=0.000$ ). Also, the subgroup of wives who displayed an AUD in combination with an anxiety disorder (AUD/anxiety disorder) were 3.7 time more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands (14.0% vs 3.8%, chi-square = 34.5,  $p=0.000$ ).

#### 4. Discussion

The results of this study demonstrate that co-occurring SUD/psychiatric disorders are much more common among the spouses of SUD+ husbands than among the spouses of SUD- husbands, which confirms part of our original hypothesis. However, non-co-occurring (“pure”) psychiatric disorders were not found to be more common among the wives of the SUD+ husbands than among the wives of SUD- husbands, so that part of the original hypothesis was disproved. Therefore, our findings demonstrate that there is not a non-specific generalized higher level of co-occurring psychiatric disorders among the wives of SUD+ husbands, but rather there is a specific higher level of psychiatric disorders noted only among those wives who also display a substance or alcohol use disorder.

It is noteworthy that the higher levels of co-occurring psychiatric disorders among the wives closely paralleled the higher levels of substance and alcohol use disorders among those wives. Specifically, the prevalence of substance use disorders was about six to seven times higher in the wives of SUD+ husbands than among the wives of SUD- husbands, and similarly the prevalence of co-occurring substance use disorders (in combination with either depressive disorders or anxiety disorders) was about seven times higher than in the wives of SUD- husbands. Furthermore, the prevalence of alcohol use disorders was about three to four times higher in the wives of SUD+ husbands than among the wives of SUD- husbands, and similarly the prevalence of co-occurring alcohol use disorders (in combination with either depressive disorders or anxiety disorders) was about three to four times higher than in the wives of SUD- husbands. Thus, the higher prevalence of co-occurring disorders among the wives closely parallels the higher level in the prevalence of the corresponding substance or alcohol use disorders among those wives. These findings raise the possibility that the higher levels of co-occurring psychiatric disorders among the wives was influenced by the higher prevalence of the corresponding SUDs and AUDs among the wives of the SUD+ husbands, though other potential explanations are possible. These findings confirm and extend our recent findings regarding the effects of spousal substance use (Clark et al., 2004; Homish et al., 2007; Homish et al., 2008).

There are limitations to our research design that should be noted when interpreting our findings. First, the sample was not a random sample from across the United States, so the results may not generalize to the United States as a whole. In addition, longitudinal data regarding spousal patterns of substance use and psychiatric disorders is not available from our current study or from other studies (Whisman, 2006). Consequently, longitudinal studies are warranted to further clarify the effects of substance use disorders on the psychiatric and substance use disorders of the spousal partner. For example, longitudinal studies could help to clarify the extent to which substance use disorders and associated co-occurring psychiatric disorders might be the result of “assortative mating” of persons who are both prone to substance use disorders (Vanyukov et al., 1996) as opposed to other potential explanations. Additional genetics studies and neuron-imaging studies are warranted to clarify the role of genetics in the etiology of SUD and in the mating patterns of persons with SUD. In addition, studies are warranted to clarify the usefulness of couples therapy in the treatment of co-occurring substance use disorders (Whisman, 2006).

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## References

- Bachman, J. G., Wadsworth, K. N., O. Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Mahwah, N.F.: L. Erlbaum Associates.
- Brook, J. S., Richter, L., Whiteman, M., & Cohen, P. (1999). Consequences of adolescent marijuana use: Incompatibility with the assumption of adult roles. *Genetic, Social, and General Psychology Monographs*, 125, 193–207.
- Clark, D. B., Cornelius, J. R., Wood, D. S., & Vanyukov, M. E. (2004). Psychopathology risk transmission in children of parents with substance use disorders. *American Journal of Psychiatry*, 161, 685–691.
- Cornelius, J. R., Clark, D. B., Reynolds, M., Kirisci, L., & Tarter, R. (2007). Early age of first sexual intercourse and affiliation with deviant peers predict development of SUD: A prospective longitudinal study. *Addictive Behaviors*, 32, 850–854.
- Cornelius, J. R., Reynolds, M., Martz, B. M., Clark, D. B., Kirisci, L., & Tarter, R. (2008). Premature mortality among males with substance use disorders. *Addictive Behaviors*, 33, 156–160.
- Degenhardt, L., Hall, W., & Lynskey, M. (2003). Exploring the association between cannabis use and depression. *Addiction*, 98, 1493–1504.
- Homish, G. G., Leonard, K. E., & Cornelius, J. R. (2007). Predictors of marijuana use among married couples: The influence of one's spouse. *Drug and Alcohol Dependence*, 91, 121–128.
- Homish, G. G., Leonard, K. E., & Cornelius, J. R. (2008). Illicit drug use and marital satisfaction. *Addictive Behaviors*, 33, 279–291.
- Kosten, T. A., & Rounsaville, B. J. (1992). Sensitivity of psychiatric diagnosis based on the best estimate procedure. *American Journal of Psychiatry*, 149, 1225–1227.
- Spitzer, R., Williams, J., & Gibbon, M. (1987). *Instruction Manual for the Structured Clinical Interview for DSM-III-R (SCID, 4/1/87 revision)*. New York: New York State Psychiatric Institute.
- Vanyukov, M. M., Neale, M. C., Moss, H. B., & Tarter, R. E. (1996). Mating assortment and the liability to substance abuse. *Drug and Alcohol Dependence*, 42, 1–10.
- Whisman, M. A. (2006). Chapter 14, Role of couples relationships in understanding and treating mental disorders. In S. R. H. Beach, M. Z. Wamboldt, N. J. Kaslow, N. E. Heyman, M. B. First, L. G. Underwood, & D. Reiss (Eds.), *Relational Processes and DSM-V* (pp. 225–238). Washington DC: American Psychiatric Publishing, Inc.