Relationship between empathic processing and drinking behavior in project MATCH

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HIGHLIGHTS

- Validated a model of Empathic Processing (EP) in an alcohol treatment sample.
- EP and family social support were negatively associated with drinking in males.
- Friend social support was negatively associated with drinking in females.
- EP may be a treatment-modifiable risk factor for drinking in males.

ARTICLE INFO

ABSTRACT

Introduction: Family relationships, social connectedness and a greater network of supportive others each predict better drinking outcomes among individuals with alcohol use disorder (AUD). The association between social factors and drinking may be related to the ability of individuals to take the perspectives of others' mental and emotional states, defined as empathic processing (EP). As such, it may be the case that EP is associated with social support (SS) and drinking behavior among individuals with AUD, yet few prior studies have attempted to define EP in an AUD sample.
Methods: The current study was a secondary data analysis of Project MATCH (*N* = 1726) using structural equation modeling to model EP as a latent factor. The study also sought to test the baseline associations between EP, SS, and drinking behavior, as well as sex differences in the associations between EP, SS, and drinking. It was hypothesized that EP would be positively associated with SS and negatively associated with drinking behavior.
Results: Results suggested adequate model fit of the EP construct. Structural equation models indicated significant associations between EP, SS, and both drinking consequences and percent drinking days, but only for males. Males reported significantly lower EP and SS from friends, but more SS from family, compared to females. EP was not related to drinking among females.
Conclusions: The current study validated a model of EP in a treatment-seeking sample of individuals with alcohol use disorder. Future work may consider EP as a treatment-modifiable risk factor for drinking frequency and consequences in males.

1. Introduction

1.1. Social support, empathy, and drinking

Drinking-related social consequences and transitional life events (e.g., divorce due to alcohol use) are associated with attempts to reduce drinking (Dawson, Grant, Stinson, & Chou, 2006). This behavior may be related to the capacity of the individual to internalize the feelings and perspectives of others regarding drinking-related consequences. While there are a number of different definitions for the various aspects of internally modeling either the thoughts or feelings of others and

responding accordingly (e.g., empathy, theory of mind, perspective taking, etc.), we propose the overarching term "empathic processing" (EP) to operationally define the various permutations of representing the experiences of others within the self. We further propose that EP may play a role in drinking changes among heavy drinkers, and lack of EP ability may explain continued heavy drinking despite social consequences. In line with this, Dearing et al. (2013) found that guilt (an "other-centric" emotion) is more predictive of drinking reduction among non-treatment seeking heavy drinkers than shame (a "self-centric" emotion). Likewise, among treatment seekers there is evidence that other-centric considerations are important for following treatment

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recommendations (Ryan, Plant, & O'Malley, 1995).

Despite the possible role EP might play in treatment seeking, most individuals with alcohol use disorder (AUD) do not actually perceive a need for treatment (Hedden & Gfroerer, 2011) and often do not consider seeking treatment until after social relationships are damaged (Tucker, Vuchinich, & Pukish, 1995; Tucker, Vuchinich, & Rippens, 2004). The role of social support (SS) and environmental factors in the change (or persistence) of drinking is well documented in the alcohol treatment literature (McCrady, 2004; Witkiewitz & Marlatt, 2004). Protective factors such as spousal commitments and family tend to be helpful in the maintenance of non-problem drinking (Tucker et al., 2004) and retention in alcohol treatment (Simpson & Joe, 1993). Even support unspecific to drinking predicts a higher number of percent days abstinent following treatment (Beattie & Longabaugh, 1999).

There is a small, but growing body of literature examining constructs related to EP and their associations with heavy drinking. For example, Maurage, Grynberg, Noël, Joassin, Hanak, et al. (2011), Maurage, Grynberg, Noël, Joassin, Philippot, et al. (2011) found that heavy drinkers had a deficit in the emotional understanding of the feelings of others, which was replicated by Ferrari, Smeraldi, Bottero, and Politi (2014) using similar measures. Likewise, Bosco, Capozzi, Colle, Marostica, and Tirassa (2014) found general deficits among drinkers on self-reported ability to understand both the feelings and mental states of others. Numerous other studies report emotion recognition dysfunction in alcohol samples as well (Philippot et al., 1999; Uzun, 2003; Uerkermann et al., 2005).

Studies have found that individuals with AUD show not only a decreased recognition of emotional content in general, but also a bias toward identification of negative affect and anger in particular, over-attributing anger to both emotional and non-emotional stimuli (Dethier & Blairy, 2012; Frigerio, Burt, Montagne, Murray, & Perrett, 2002; Maurage et al., 2009). This may signal either a predisposition for or the development of lower levels of EP among individuals with AUD. This replicated finding has real-world implications for how EP might be disrupted in heavy drinkers, contributing to potentially greater alcohol use whereby drinkers' sensitivity to negative and threatening cues might perpetuate behaviors or affective experiences that lead to further alcohol use. Indeed, research has suggested a potential cyclical problem whereby drinking infringes upon healthy emotional behavior, which in turn drives social consequences and potentially more drinking behavior (Philippot et al., 1999).

Although EP is often considered an individual-level trait, trait-level EP may be interconnected with external social factors and levels of SS, which each show correlations with drinking reduction. Specifically, individuals with lower levels of EP might have difficulty in maintaining social relationships and might demonstrate deficits in other social behaviors (e.g., interpersonal conflict, acting with aggression; Davis, 2004). Within romantic relationships, individual differences in EP are associated with relationship support, above and beyond other relational variables (Devoldre, Davis, Verhofstadt, & Buysse, 2010). Furthermore, as reviewed above, there is an established relationship between efforts to reduce drinking and social factors that support reductions in drinking. Given the observed associations between EP and SS and associations between SS and drinking, we controlled for the perceived availability of social support in our analysis of EP and drinking, as described below.

1.2. Sex differences in AUD and EP

The importance of examining sex differences in health-related research has been highlighted since 1993, when the National Institutes of Health in the United States introduced the stipulation that women should be included in clinical trials. More recently, the Sex and Gender Equity in Research (SAGER) guidelines have recommended that sex and gender information be reported in all research (Heidari, Babor, DeCastro, Tort, & Curno, 2016). Sex differences are critical to examine

in the field of addiction given widespread underrepresentation of women in the literature yet known sex differences in animal and human models of addiction (Becker, McClellan, & Reed, 2017; Wetherington, 2007). In AUD, females tend to progress from initial drinking to AUD and treatment seeking more quickly than males (Zilberman, Tavares, & el Guebaly, 2003), although this trend is changing as more females are drinking hazardously and becoming dependent on alcohol at the same rates as males (Keyes, Martins, Blanco, & Hasin, 2010). Sex differences on empathy are mixed in the literature. Research using a large, population-based sample, found higher self-reported empathy in women, but few sex differences emerged in an experimental paradigm (Baez et al., 2017). No studies have examined sex differences on EP in AUD samples although a recent review called for more research on the role of sex in the association between empathy and substance use disorders (Massey, Newmark, & Wakschlag, 2017).

1.3. Current study

Potential relationships between drinking and EP ability exist in prior studies (Bosco et al., 2014; Maurage, Grynberg, Noël, Joassin, Hanak, et al., 2011; Maurage, Grynberg, Noël, Joassin, Philippot, et al., 2011), but the role of EP on specific drinking variables has not been thoroughly investigated and prior research has not considered EP uniquely from the effects of SS. The present analysis sought to test a model of EP and SS in a large sample of treatment-seeking AUD patients. The current study extends the limited literature on EP by examining the construct in a large sample of individuals with AUD. This is significant in that most studies showing EP deficits in AUD have typically relied on smaller, more severe, and often inpatient samples (Dethier & Blairy, 2012; Kornreich et al., 2013; Maurage et al., 2009). Also, given that the role of social factors in drinking is well known (McCrady, 2004; Tucker et al., 2004), we sought to study whether EP is associated with drinking behavior after controlling for the effects of perceived SS. These results will help characterize the utility of an original model of the relationship among EP, SS, and drinking. Further, we sought to explore whether there were sex differences in the relationship among EP, SS, and drinking behavior.

2. Methods

2.1. Participants and procedures

The current study is a secondary data analysis of Project MATCH (Matching Alcoholism Treatments to Client Heterogeneity; Project MATCH Research Group, 1997). Participants (N = 1726; 75.7% male) were recruited from nine clinical research sites (controlled for in our analyses), divided into outpatient and aftercare "arms." The outpatient arm (n = 952, 72% male) included patients recruited from the community for outpatient treatment for AUD. The aftercare arm (n = 774, 80% male) consisted of individuals recruited from inpatient or intensive day hospital treatment. Both arms used identical methods including randomization to one of three treatment conditions: Cognitive Behavioral Therapy (CBT), Motivational Enhancement Therapy (MET), or Twelve-Step Facilitation (TSF). Although the original study was a longitudinal treatment study, this analysis concerns only baseline data prior to any treatment sessions.

2.2. Measures

The present study tested a confirmatory factor analysis (CFA) of 17 psychosocial items as indicators of an empathic processing (EP) latent factor and two latent social support (SS) factors, SS from friends and SS from family, as correlated with baseline drinking levels. The EP model consisted of 5 items from the Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Stapp, 1974), 1 item from the California Psychological Inventory (CPI; Gough, 1994), and 1 item from the