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How to think about your drink: Action-identification and the relation between mindfulness and dyscontrolled drinking

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HIGHLIGHTS

- Previous findings indicate a relation between mindfulness and control of alcohol use.
- We examined whether action identification (AI) of alcohol use explains this relation.
- Results showed that more mindful individuals reported greater control of alcohol.
- Mindful individuals reported less high-level AI (instrumental drinking).
- High-level AI partly mediated the relation between mindfulness and alcohol control.

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ABSTRACT

Cross-sectional and intervention research have shown that mindfulness is inversely associated with difficulties in controlling alcohol use. However, little is known regarding the mechanisms through which mindfulness is related to increased control over drinking. One potential mechanism consists of the way individuals represent their drinking behaviour. Action identification theory proposes that self-control of behaviour is improved by shifting from high-level representations regarding the meaning of a behaviour to lower-level representations regarding "how-to" aspects of a behaviour. Because mindfulness involves present-moment awareness, it may help to facilitate such shifts. We hypothesized that an inverse relation between mindfulness and dyscontrolled drinking would be partially accounted for by the way individuals mentally represent their drinking behaviour — i.e., reduced levels of high-level action identification and increased levels of low-level action identification. One hundred and twenty five undergraduate psychology students completed self-report measures of mindful awareness, action identification of alcohol use, and difficulty in controlling alcohol use. Results supported the hypothesis that high-level action identification partially mediates the relation between mindfulness and dyscontrolled drinking but did not support a mediating role for low-level action identification. These results suggest that mindfulness can improve self-control of alcohol by changing the way we think about our drinking behaviour.

1. Introduction

A central element of alcohol and drug addiction is difficulty in restraining use (de Wit, 2008; Widiger & Smith, 1994). As might be expected, difficulties in the self-control of drinking behaviour are related with consumption and alcohol-related problems (Connor, George, Gullo, Kelly, & Young, 2011). These problems include a variety of diseases and increased likelihood of engaging in violent behaviour and being involved in car accidents (National Institute of Alcohol Abuse and Alcoholism, 2012; Rehm et al., 2009). Such difficulties in controlling drinking are prevalent, as demonstrated by more than 17 million adults and nearly 1 million adolescents being diagnosed with an alcohol use disorder (AUD) in the US in 2012 (National Institute on Alcohol Abuse and Alcoholism, 2012).

Given the considerable social and economic costs of hazardous and harmful drinking, there is a need to develop innovative treatment strategies to augment the modest effects of current interventions (Magill & Ray, 2009). Mindfulness training represents one possibility for improving the treatment of AUD. Mindfulness has been defined as an awareness of present moment experience and having a nonjudgmental and accepting attitude toward that experience (Bishop et al., 2004). The awareness element involves paying attention to present-moment experience (behaviours or sensations) in contrast to mental representations regarding the past or the future. The accepting attitude element

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involves giving up an emotion regulation agenda (i.e., to increase positive or decrease negative emotion) and instead involves just allowing experiences (emotions, thoughts, impulses) to come and go on their own.

Initial research suggests that mindfulness based treatments may hold promise as an intervention for addictive behaviours. For example, a pilot study found that meditation training led to a significant decrease in alcohol consumption during the eight weeks of training (Zgierska et al., 2008). Recent research has shown that compared to both cognitive-behavioural relapse prevention and treatment as usual, mindfulness-based relapse prevention participants demonstrated less alcohol consumption at a 12-month follow-up (Bowen et al., 2014). The benefits of mindfulness training have also been shown for other addictive behaviours, such as nicotine and other drug use (Bowen et al., 2014; Brewer et al., 2011; Gifford et al., 2004).

The potential importance of mindfulness in alcohol-related self-control has been further supported by research on individual differences (Fernandez, Wood, Stein, & Rossi, 2010; Karyadi & Cyders, 2015). This work has elucidated the role of different facets of mindfulness. For example, one widely-used mindfulness measure assesses five facets, including *acting with awareness* (being present in the moment and conscious of one's action), *describing* (ability to verbalize internal experiences), *observing* (extent to which the individual attends to internal and external experiences), *nonjudging of inner experiences* (accepting sensations and experiences without evaluating them as positive or negative), and *nonreactivity toward inner experiences* (letting thoughts and emotions come and go instead of getting involved with them; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Mindful awareness appears to be particularly important in alcohol use, as previous research has found that the acting with awareness facet predicts variance of alcohol use unique from the other mindfulness facets (Karyadi & Cyders, 2015; Fernandez et al., 2010) and that it is the best predictor of dyscontrolled drinking as indicated by current and past AUD (Levin, Dalrymple, & Zimmerman, 2014).

Although the intervention and cross-sectional research reviewed above suggests a role for mindful awareness in reducing dyscontrolled drinking, little is known about the processes through which mindfulness enhances control over alcohol. One possible mechanism consists of the abstractness with which behaviour is represented in the mind. Action identification theory proposes that any action can be represented at different levels of abstractness, such as low-level, concrete muscle movements and at higher-levels, such as means of obtaining a goal or fulfilling a value (Vallacher & Wegner, 1987). For example, playing a musical instrument can be represented with low-level act identities (e.g., *moving fingers on the string*) and with high-level act identities (e.g., *being a musician*). Similarly, drinking alcohol can be represented with low-level (e.g., *swallowing liquid*) and high-level (e.g., *relieving tension*) act identities. The theory proposes that when a behaviour is unfamiliar, low-level representations will predominate and that continued practice automatizes the behaviour as habit, allowing for the development of high-level act identities. It is important to note that low-level and high-level representations do not reflect a bipolar scale of act identities. An individual can have both types of representations available, as is demonstrated by positive correlations between low and high-level act identity scales (Wegner, Vallacher, & Dizadji, 1989).

Action identification theory further proposes that the availability of both low-level and high-level act identities can benefit the self-regulation of behaviour (Vallacher & Wegner, 1987). High-level representations may be beneficial in facilitating the individual to transcend the immediate situation in the service of longer-term objectives, such as enhancing motivation for daily guitar practice by thinking of oneself as a musician (Trope & Liberman, 2010). In a somewhat analogous fashion, motivational interventions aim to enhance motivation to refrain from substance use by relating consumption with values and long-term goals (e.g., *heavy drinking* impedes *being a good parent*; Miller & Rollnick, 1991).

At other times, high-level action identification may impede self-control. One reason is that high-level act identities represent behaviour that is motivated (e.g., drinking to achieve a desired emotional state) and habitual (e.g., automatic approach responses to alcohol cues). Previous research has shown that alcohol dyscontrol and alcohol-related problems are related with the extent to which mental representations of alcohol-related appetitive responses have become automatized (Field, Kiernan, Eastwood, & Child, 2008; Ostafin, Kassman, de Jong, & van Hemel-Ruiter, 2014; Palfai & Ostafin, 2003). Related to the habit element, high-level act identities do not, compared to low-level act identities, allow breaking the action down into the components that are involved in the execution of the action (e.g., restricting alcohol intake can be facilitated by bringing the representation of the behaviour down from *relieving tension* to *swallowing liquid*). Being aware of the components of an action allows for more opportunities to monitor one's behaviour and to prevent unwanted actions (e.g. ordering another drink).

The role of action identification in the self-control of alcohol use has been shown in several studies. For example, compared to participants who consumed alcohol at more moderate levels, alcoholic inpatients reported both (a) greater scores on high-level action identification of alcohol behaviour (e.g., *feeling relaxed*) and (b) lower scores on low-level action identification (e.g., *lifting a glass*; Wegner et al., 1989). A more recent study extended these findings by examining level of action identification immediately following a single drinking episode rather than in regard to usual drinking behaviour (Palfai & Ostafin, 2010). In this study, hazardous drinkers completed self-report measures of typical alcohol consumption and dyscontrolled drinking behaviour. Participants then engaged in a taste test drinking task in which they rated the taste of three different glasses of beer, followed by an assessment of their action identification for their consumption during the taste test. Results showed a positive relation between trait difficulty in controlling typical alcohol use and high-level action identification of the taste test drinking behaviour. This relation remained when controlling for average alcohol consumption per week and amount consumed during the drinking task, thereby providing stronger evidence that this finding indicated an association between action identification and self-control rather than simply heavier use (i.e., it may be that some people drink heavily by choice rather than as a result of failed self-control).

Given that mindful awareness involves shifting awareness from abstract thinking (e.g., daydreaming; thinking about the past or future) to what one is actually doing in the present moment (Brown, Ryan, & Creswell, 2007), it should be inversely related to high-level action identification of alcohol use and positively related to low-level action identification. This idea is supported by findings that mindfulness predicts less high-level action identification in other disorders. For instance, research on the relationship of mindfulness and depression has found that mindfulness treatments help depressed people to replace abstract repetitive negative thinking (rumination) with a more concrete thinking style (Hawley et al., 2014; Ramel, Goldin, Carmona, & McQuaid, 2004). These findings are further supported with results showing an inverse relation between trait mindfulness and rumination (Evans & Segerstrom, 2011; Raes & Williams, 2010).

In sum, there is increasing evidence for an inverse relation between mindful awareness and dyscontrolled drinking. Action identification represents a possible mechanism for this relation, both because mindful awareness involves bringing attention from the abstract (future and past) to the concrete present and because such shifts seem to be involved in better self-control of alcohol behaviour. The current study was designed to examine this possibility. We hypothesized that an inverse relation between mindful awareness and dyscontrolled drinking would be partially accounted for by action identification of drinking behaviour. We expected that individuals high in trait mindfulness would experience less difficulty in controlling their alcohol use and that this would be partly explained by mindful individuals demonstrating less high-level action identification and more low-level action identification. These hypotheses