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Abstract: Social support has been found to positively assist in recovery from problematic alcohol use. This project examined the relationship between disclosure of alcohol recovery status to social connections, and longest period of alcohol abstinence. This cross-sectional study had (N=154) adult participants from the US who were in recovery from problematic alcohol use. Beyond demographic data, participants reported on a variety of things including medical, psychiatric and recovery history. Longest period of alcohol abstinence was associated with participant's level of openness to disclosure, belief in the efficacy of disclosing, number of social connections disclosed to and categories of people one disclosed to. The most common social connections disclosed to were close friends, support groups, and healthcare providers. Disclosing to one's parents, grandparents and children corresponded to the longest periods of alcohol abstinence. Our findings suggest that disclosing recovery status to social connections may support longer periods of alcohol abstinence.

Keywords: social support, alcohol use, social psychology, addictive behavior, disclosure.

Resumen: Se ha comprobado que el apoyo social contribuye positivamente a la recuperación del consumo problemático de alcohol. Este proyecto examinó la relación entre la divulgación del estado de recuperación del alcohol a las conexiones sociales y el período más largo de abstinencia de alcohol. Este estudio transversal tuvo (N=154) participantes adultos de los Estados Unidos que se estaban recuperando del consumo problemático de alcohol. Más allá de los datos sociodemográficos, los participantes informaron sobre una variedad de cosas, incluyendo historia médica, psiquiátrica y de recuperación. El período más largo de abstinencia de alcohol se asoció con el nivel de apertura de los participantes a la divulgación, el número de conexiones sociales reveladas y las categorías de personas a las que se reveló. Las conexiones sociales más comunes reveladas fueron amigos cercanos, grupos de apoyo y proveedores de atención médica. Revelar a los padres, abuelos e hijos correspondía a los períodos más largos de abstinencia al alcohol. Nuestros hallazgos sugieren que revelar el estado de recuperación a las conexiones sociales puede apoyar períodos más largos de abstinencia al alcohol.

INTRODUCTION

Context

While problematic alcohol use is an issue worldwide, this paper focuses on problematic alcohol use in the US. The methodology from this project can be replicated with samples from different countries to further understanding of recovery from problematic alcohol use and improve treatment considerations.

Background

According to the World Health Organization (WHO) globally, there are approximately 3 million annual deaths (5.3% of all deaths) resulting from problematic alcohol use (WHO, 2019). Alcohol use contributes to 5.1% of the global burden of disease (WHO, 2019) and a causal relationship has been found between problematic alcohol use and psychiatric disorders (WHO, 2019). In Argentina, approximately 21.9% of the population (15+ years old) engages in heavy episodic drinking and an estimated 6.8% meets criteria for alcohol use disorder (AUD) (WHO, 2019). These statistics indicate the need for more effective interventions as well as public policy.

Within the US, approximately 23% of youth have tried alcohol by age 13 (Eaton et al., 2008). The Substance Abuse and Mental Health Services Administration (SAMHSA) estimates that 25.8% of people ages 18 and older engage in binge drinking (SAMHSA, 2019) and 6.3% of adults engage in heavy drinking (SAMHSA, 2019). In a population of approximately 330 million, nearly 15 million people aged 12 and older fit the criteria for alcohol use disorder (AUD) (SAMHSA, 2019). Despite this prevalence, only 7.2% of people with AUD receive any treatment (SAMHSA, 2019). While the diagnosis of AUD and treatment differ across and within countries, alcohol consumption is significant enough to be a global public health issue that increased during the COVID-19 pandemic.

The Center for Disease Control and Prevention has identified alcohol as the third-leading cause of preventable death in the US with approximately 95,000 alcohol-related deaths occurring annually (CDC ARDI, 2020). Alcohol is implicated in approximately 18.5% of emergency department visits and 22.1% of opioid related overdoses (Jones et al., 2014). High intensity drinking (defined as drinking two times the binge drinking threshold of 4+ drinks for women and 5+ drinks for men) can make it 70 to 93 times more likely to have an alcohol-related emergency department visit (Hingson et al., 2017).

Economically, alcohol misuse has been estimated to have cost the US \$249 billion dollars in 2010 with three-quarters of these costs being related to binge drinking (Sacks et al., 2010). Alcohol misuse can elevate the risk of developing liver disease (Grewal & Viswanathen, 2012), heart disease, depression, stroke, and stomach bleeding, as well as certain cancers (Baan et al., 2007; IARC 2012, Bagnardi et al., 2015).

Social Support and Recovery

The term recovery in relation to problematic alcohol use does not have an agreed upon definition. For instance, researchers may define recovery as a stage within the clinical course of an alcohol use disorder while members of Alcoholics Anonymous may define recovery as abstinence in addition to developing a new way of life (Kaskutas et al., 2014). Furthermore, not all people with a history of problematic alcohol use identify as being in recovery (Kelly et al., 2018). Adding to this complexity, people who identify as being in recovery may utilize both abstinence or harm reduction based approaches (Subbaraman & Witbrodt, 2014). In response to the heterogeneity of recovery definitions, some research has shifted to asking participants to self-identify as

in recovery rather than using diagnostic criteria to define recovery. Irrespective of how one defines recovery, one common factor that promotes recovery is social support.

Social support refers to an individual's perception of available instrumental, emotional, and informational support from others in their social network (Berkman et al., 1982). Research has indicated that social support is an important feature of overall health and well-being (Cohen & Ashby, 1985). For people in substance use recovery, social support is positively associated with recovery, abstinence and treatment retention (Dobkin et al., 2002).

For those in recovery from problematic alcohol use, reporting higher levels of social support is associated with higher abstinence-specific self-efficacy (Stevens et al., 2015). Perceived social support can influence alcohol use rates, treatment seeking behaviors, and sobriety after initial treatment (Mericle, 2014). While social support can be protective, perceiving low levels of social support can lead to an increased risk of relapse among those with AUD (Zywiak et al., 2002). Stigma can reduce openness about recovery status and is a common barrier to seeking social support, engaging in treatment and recovery (Barry et al., 2014; Birtel et al., 2017; van Boekel et al., 2013; van Boekel et al., 2016; Glass et al., 2013).

Two important social support factors for those in alcohol recovery are the size of one's social network and its composition. Larger social network sizes are associated with less perceived stress, while smaller network sizes are associated with increased stress (Stevens et al., 2015). A possible explanation is that people with smaller social networks may have less people to rely on for support or may experience increased levels of isolation. This finding is important as people with problematic alcohol use typically have smaller social network sizes (Mowbray et al., 2014). Mowbray and colleagues (2014) studied how people with and without problematic alcohol use interacted with their social connections over 2-week periods. They found significant differences in social network sizes between individuals with no history of alcohol misuse (24.09 people) and people with AUD (19.96 persons). The relationship between smaller network sizes and stress is noteworthy as increased stress can increase the risk of relapse (Sinha, 2001).

Social network composition also influences recovery as having more social connections who drink or use recreational drugs increases risk of relapse (Eddie & Kelly, 2017; Mawson et al., 2015) while low-risk social connections (who drink rarely or not at all) are correlated with abstinence (Trocchio et al., 2013).

Examining social network factors of those in recovery from problematic alcohol use is a growing area of study. Our project sought to expand understanding in this area by examining four variables related to how people in recovery tell others that they are in recovery. Specifically, we looked at the relationship between the following four variables and longest period of alcohol abstinence: (1) number of people disclosed to, (2) the categories of social connections disclosed to, (3) level of openness to disclosing, and (4) beliefs about the efficacy of disclosure.

METHODOLOGY

This study asked adults in alcohol recovery to complete an online questionnaire in which all non-eligibility related questions were optional. This was done to reduce possible anxiety and stress which can increase risk of relapse. The design of this questionnaire received input from those in active recovery.

Participants were recruited from 13 countries. This analysis focused participants residing in the US to reduce the possibility of country-specific confounding variables such as national policies or cultural differences in substance use and stigma. In the future, this questionnaire can be translated and adapted to fit other countries to allow for cross-cultural comparisons.

Data collection coincided with the emergence of the Covid-19 pandemic, a time of increased alcohol sales and use. Recruitment occurred from March 2020 to July 2020 and was done online through recovery forums and recovery focused organizations with an online presence. To increase the quality of data and further reduce the potential for frustration with the questionnaire format, participants were also given opportunities

to give written feedback and elaborate on their responses if they desired to. All methods were approved by the Institutional Review Board of the Wright Institute. All data reported are from those who went through the informed consent process and no one involved in the design, dissemination of the study, or its findings have any conflict of interest.

Participants

The target population for this study was adults (18+ years of age) in recovery from problematic alcohol use. Prospective participants were provided an overview of the study, eligibility, informed consent, and a link to the questionnaire.

Questionnaire

The questionnaire inquired about demographic information, psychiatric history, medical conditions and alcohol use recovery. Demographic questions inquired about variables such as age, gender, marital, cohabitation status, and religiosity. Participants answered a variety of alcohol recovery questions including: age of first alcohol use, longest period of alcohol abstinence, insurance type, availability of treatment in the participant's native language, their treatment goals whether it be reduction or abstinence. In addition, we asked participants to report their substance use treatment history.

To address the aims of our study, the following questions were utilized. For aim (1), number of social network connections was defined as anyone the participant may have disclosed their recovery status to (e.g. healthcare providers, coworkers, friends, etc.). To assess how many social network connections participants had told about their recovery status, we had participants select from seven possible ranges: 0, 1-5, 6-10, 11-25, 26-50, 51-99, and 100+ people. With aim (2) in mind, we asked participants to identify who they had disclosed their recovery status to using a list of 21 categories of social connections. To address aim (3) we had participants rate their level of openness to disclosing using a 4-point scale ranging from "I haven't told anyone" to "I'm open to sharing with nearly everyone." We asked participants "Do you feel that disclosing your recovery status to others is helpful for your recovery?" to address aim (4). We utilized a 5-point response scale ranging from "definitely no" to "definitely yes." In addition to alcohol questions, participants reported medical conditions, psychiatric history, presence of diagnosed learning disability, other recreational drug use, and current medications.

RESULTS

Recruitment

In total, n=261 participants were recruited from 13 countries. Nearly all participants completed our questionnaire (n=244). We analyzed data from our US sample (n=154) only to reduce the chances of country-specific confounding variables (e.g. country specific stigma, healthcare systems, cultural differences in alcohol consumption).

Participant Demographics

Our sample (n=154) was 50% female (n=77), 49.4% male (n=76) and 0.6% transgender (n=1). The mean age of participants was 52.9 years and the majority of participants identified as Caucasian (n=150; 97.4%).

Other groups included, Hispanic/LatinX (n=6; 3.9%), North American Indigenous (n=3; 1.9%), African-American/Black (n=2; 1.3%), Asian (n=1; 0.6%), and Other (n=4; 0.6%). Nearly all participants (96.1%) reported post-secondary education levels and half of the sample was married (n=77; 50%). Approximately half the sample reported at least one medical condition (48.1%) and at least one psychiatric diagnosis (62.6%).

Alcohol Use and Longest Period of Abstinence

Mean age of first alcohol consumption was 15 years old and the mean age for self-identifying problematic alcohol consumption was 30 years (28.8 male; 31.2 female). While most participants (n=120; 78.9%) identified alcohol abstinence as their goal, some identified alcohol reduction as their goal (n=32; 21.1%). There was a statistically significant difference between the abstinence (8.06 years) and reduction (3.28) goal groups in terms of longest period of abstinence ($p < 0.01$; Cohen's $f = 0.306$). The mean longest period of alcohol abstinence was 7.1 years with a significant difference between genders (male 8.48 years; female 5.77) ($p < 0.01$; Cohen's $d = 0.440$).

Only participants who identified alcohol abstinence as their alcohol use goal were included in the following analyses.

Number of Disclosures and Length of Alcohol Abstinence

When asked to report the total number of people participants had disclosed their alcohol recovery status to, responses were as follows: 0 people (n=4), 1-5 people (n=12), 6-10 people (n=11), 11-25 people (n=26), 26-50 people (n=22), 51-99 people (n=13) and 100 or more people (n=27). There was a statistically significant difference in mean longest period of alcohol abstinence between these groupings (ranked ANOVA, $p < 0.001$; Cohens $f = 0.595$). Those who had disclosed to over 100 people had the longest mean period of alcohol abstinence (15.69 years) while those who had disclosed to 0 people had the smallest mean period of alcohol abstinence (0.68 years). As number of disclosures increased, so too did longest mean period of alcohol abstinence.

TABLE 1
Number of Disclosures and Longest Abstinence Period (years)

Number of Disclosures	Mean	Median
0 (n=4)	0.68	0.75
1-5 (n=12)	3.85	1.66
6-10 (n=11)	2.91	2.00
11-25 (n=26)	7.78	5.00
26-50 (n=22)	6.53	4.50
51-99 (n=13)	7.47	9.08
100+ (n=27)	15.69	13.51

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Who People Disclosed to and its Relationship to Length of Abstinence

The most common categories of people disclosed to were close friends (n=92), support groups (n=89), healthcare providers (n=86), siblings (n=78), and spouses (n=70). Those least disclosed to were a non-

defined “other” category (n=8), religious leaders (n=13) and grandparents (n=13). Participants who had disclosed to grandparents, parents, children, and undefined others reported the longest mean periods of alcohol abstinence.

Participants who had disclosed to grandparents reported the longest periods of alcohol abstinence (mean = 13.78 years) followed by undefined other (mean = 12.05 years), parents (mean = 11.38 years) and employers (mean = 11.34 years). To assess the relationship between each social connection and longest period of alcohol abstinence, a regression analysis was conducted. Disclosing to one’s parents (Beta = 0.2, $p < 0.05$) children (Beta = 0.2, $p < 0.05$) and posting anonymously on social media (Beta = -0.2, $p < 0.05$) was significantly associated with longest period of alcohol abstinence. The overall model fit was $R^2 = 0.147$.

TABLE 2
Categories of People Disclosed to and Longest Alcohol Abstinence in years

Social Connection Category	Mean (years)	Median (years)
Close Friends (n=92)	8.51	5.02
Support Groups (n=89)	8.66	5.29
Healthcare Providers (n=86)	9.15	5.52
Siblings (n=78)	9.76	7.36
Spouse (n=70)	9.87	7.00
Other Family (n=65)	10.57	8.00
Parents (n=59)	11.38	9.00
Kids (n=51)	10.89	8.00
Social Media – Anonymous (n=43)	6.31	4.00
Boss/Employer (n=39)	11.11	9.00
Co-workers (n=38)	10.80	7.72
Ex-Romantic Partners (n=37)	8.73	5.88
Neighbors (n=35)	10.10	6.62
Acquaintances (n=34)	9.84	7.36
Significant Other (n=27)	8.27	5.04
Employers (n=25)	11.34	9.81
Social Media – Non-Anonymous (n=23)	8.54	5.29
Alcohol Service Professionals (n=22)	9.90	9.58
Grandparents (n=13)	13.78	9.08
Religious Leaders (n=13)	8.96	7.00
Others (n=8)	12.05	8.50

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Openness to Disclosure

Participants reported their level of openness to disclosing their alcohol recovery status using a 4-point scale. Of the 118 who completed this question, 43 selected “I’m open to sharing with nearly everyone” followed by “I’m open to sharing with some people but not everyone” (n=40), “I’m very selective about who I tell” (n=24), and “I haven’t told anyone” (n=11). There was a significant difference between levels of openness and longest period of alcohol abstinence (ranked ANOVA, $p < 0.001$; Cohens $f = 0.384$). Higher openness to disclosing was associated with longer mean periods of alcohol abstinence, with lower openness corresponding to shorter mean periods of abstinence. A possible explanation for this relationship is that

being higher in openness to disclosing may increase social support which in turn can increase self-efficacy of abstinence.

TABLE 3
Level of Openness and Longest Alcohol Abstinence Period (years)

Openness to Disclosing	Mean (years)	Median (years)
I'm open to sharing with everyone (n=43)	10.90	9.00
I'm open to sharing with some people but not everyone (n=40)	8.90	4.75
I'm very selective about who I tell (n=24)	4.79	3.76
I haven't told anyone (n=11)	0.71	0.25

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Belief in Efficacy of Disclosure

Participants were asked if they believed telling other people about their intentions to reduce or abstain from alcohol was beneficial to their recovery. To measure participant's belief in the efficacy of disclosure, we used a 5-point scale. Responses (n=118) were as follows: Definitely yes (n=40), Mostly yes (n=34), Sometimes yes and sometimes no (n=34), Mostly no (n=6), and definitely no (n=4). To determine if belief in disclosure efficacy was related to longest period of alcohol abstinence, we conducted a ranked ANOVA. There was a significant difference between groups (ranked ANOVA, $p < 0.05$; Cohen's $f = 0.223$). Those who believed disclosing was mostly helpful had the longest mean period of alcohol abstinence (10.68 years) while those who believed disclosing was definitely not helpful had the shortest mean period of alcohol abstinence (2.84 years).

TABLE 4
Belief in Efficacy of Disclosure and Longest Alcohol Abstinence Period (years)

Belief in Efficacy of Disclosure	Mean (years)	Median (years)
Definitely Yes (n=40)	8.19	5.02
Mostly Yes (n=34)	10.68	6.88
Sometimes Yes and Sometimes No (n=51)	6.31	3.52
Mostly No (n=9)	8.42	7.76
Definitely No (n=7)	2.84	3.16

Authors' own creation

DISCUSSION

Limitations

While this project yielded important insights, there are several areas for future improvement. Our use of self-report measures comes with common limitations such as participants having difficulty remembering variables (e.g. longest period of abstinence) or not having full knowledge related to questions asked (e.g. psychiatric diagnoses). While several treatment clinics and recovery forums were approached about this study, for the most part, the participants were those with health insurance, employment and identified as Caucasian. Although people from different countries felt comfortable to participate, it would be good

to work towards ways to include a greater variety of ethno-cultural and language groups. To increase the participation of those less proficient in English, future iterations of this study could be translated to other languages.

Summary and Implications

This project offers some understanding regarding the role of disclosure in recovery from problematic alcohol use within the US. Specifically, the data provides insight on the relationship between number of disclosures and longest period of alcohol use, as well as categories of social connections disclosed to.

We found that disclosing to more social connections was associated with longer periods of alcohol abstinence. This is congruent with previous research indicating a relationship between social network size and recovery (Stevens et al., 2015). A possible explanation is that disclosing to more people provides a larger social safety net aware of one's recovery status who can then support their abstinence. Alternatively, disclosing to more people may increase one's integration of recovery as part of their social identity which in turn may intensify their commitment to recovery. It is also plausible that people who disclose to more social connections are more willing to tolerate the risk of potential stigma or negative judgment to increase their social support. As some people did not disclose to anyone, it may be informative for future studies to examine what factors lead to not disclosing and associated recovery pathways. In addition, our analyses focused on those who had abstinence as their goal. Examining the role of disclosure amongst those who have alcohol reduction as their goal may yield important insights.

Our findings illuminated that who one discloses to makes a difference in their longest period of alcohol abstinence. For example, disclosing to one's grandparents, children, and parents corresponded to longer periods of alcohol abstinence, while those disclosing anonymously on social media reported shorter periods of alcohol abstinence. Future research may seek to understand why these connections predict longer periods of abstinence. It may be the case that grandparents, children, and parents are social connections that one spends significant time with and as a result provide more social support. In addition, it is possible that disclosing to kin increases motivation as well as accountability through making promises and confiding about recovery aspirations.

Participants' beliefs in the efficacy of disclosing was significantly related to their longest period of alcohol abstinence. More research is needed in this domain, however, this finding may be important to informing future treatment. For example, highlighting the impact of disclosure and social support to those in recovery treatment may shift their beliefs about the efficacy of telling others about their recovery which in turn may increase social support and abstinence. Prior to encouraging disclosure for those in recovery, future research should identify factors that promote safe disclosure situations and reduce stigma.

How open participants are about sharing their recovery status with others appeared to be associated with length of alcohol abstinence periods. Participants who reported more openness to disclosing also reported significantly longer periods of alcohol abstinence. This is congruent with our findings that disclosing to more people is associated with longer periods of alcohol abstinence. While we did not examine mechanisms of change, we posit a possible explanation that being open to sharing one's recovery status may increase the likelihood of telling others, which in turn can increase social support. Additionally, it is possible that openness to disclosing may be beneficial in alcohol-related contexts (e.g. at a bar or social gathering with alcohol). For instance, higher openness to disclosing may result in social connections being aware of one's recovery status which may reduce alcohol offerings at social gatherings, reduce pressure to drink alcohol, and cultivate open lines of communication about recovery status with social connections. Another possibility is that openness about recovery status may increase the likelihood of encountering other people in recovery, helping to normalize recovery and reduce stigma. Our analyses did not include a stigma measure and this may be an area for future research.

Stigmas are a burden to all who must endure them. It may be the case that alcohol treatment should include more strategies for people in recovery to disclose their recovery status to others in a way that reduces alcohol recovery stigma while increasing social support. Although we focused on a positive outcome associated with disclosure (time spent abstinent), it may be the case that disclosure of recovery status can lead to negative outcomes (e.g. job loss, social ostracizing, harassment, etc.). This is an important area for continued investigation as there may be some situations where it is beneficial to disclosure and others that may not be. Finally, the role of disclosure in recovery may differ by country. Future related projects might yield important insights by translating our questionnaire to fit the primary languages of other countries to allow for cross-cultural comparisons.

In summation, our findings suggest that disclosure of recovery status is a supportive factor in recovery from problematic alcohol use. Beyond disclosing to others, beliefs about the efficacy of disclosure were also related to alcohol abstinence. What participants expected mattered. Continuing to find strategies to increase social support and reduce stigma associated with being in recovery remains an important task globally.

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