



HHS Public Access

Author manuscript

Alcohol Clin Exp Res (Hoboken). Author manuscript; available in PMC 2024 July 02.

Published in final edited form as:

Alcohol Clin Exp Res (Hoboken). 2023 November ; 47(11): 2110–2120. doi:10.1111/acer.15187.

Characterizing online social support for alcohol use disorder: a mixed-methods approach

Jason B. Colditz, PhD, MEd,

University of Pittsburgh Department of Medicine, Division of General Internal Medicine

Kar-Hai Chu, PhD,

University of Pittsburgh School of Public Health, Department of Behavioral and Community Health Sciences

Lily Hsiao, BA,

University of Pittsburgh Department of Medicine, Division of General Internal Medicine

Erica Barrett, BA,

University of Pittsburgh School of Public Health, Department of Behavioral and Community Health Sciences

Kevin L. Kraemer, MD, MSc,

University of Pittsburgh Department of Medicine, Division of General Internal Medicine

Sarah L. Pedersen, PhD

University of Pittsburgh Department of Psychiatry

Abstract

Background: Online social media communities are increasingly popular venues for discussing alcohol use disorder (AUD) and recovery. Little is known about distinct contexts of social support that are exchanged in this milieu, which are critical to understanding social dynamics of online recovery support.

Methods: We randomly selected one post per day over the span of a year, from the StopDrinking recovery forum. Direct responses to posts were double-coded within an established theoretical framework of social support. Within a mixed-methods research framework, we quantified linguistic characteristics of 1,386 responses (i.e., text length, complexity, sentiment) and qualitatively explored themes within and among different types of social support.

Results: Emotional support was most prevalent (74% of responses) and appeared as the sole form of support in 38% of responses. Emotionally supportive responses were significantly shorter, less complex, and more positively valenced than other support types. Appraisal support was also common in 55% of responses while informational support was identified in only 17%. There was substantial overlap among support types, with 40% of responses including two or more

Corresponding Author: Dr. Jason B. Colditz, University of Pittsburgh Department of Medicine, 230 McKee Place #600, Pittsburgh, PA 15213, colditzjb@pitt.edu.

Conflicts of Interest:

The authors have no conflicts of interest to declare.

types. Salient themes included the common use of community-specific acronyms in emotional support. Appraisal support conveyed feedback about attitudes and behaviors that are perceived as (un-)favorable for AUD recovery. Informational support responses were composed primarily of recommendations for self-help literature, clinical treatment approaches, and peer recovery programs.

Conclusions: Social support in this sample was primarily emotional in nature, with other types of support included to provide feedback and guidance (i.e., appraisal support) and supplemental recovery resources (i.e., informational support). The provided social support framework will be helpful to characterize community dynamics among heterogeneous online AUD recovery support forums. This framework will also be helpful to observe changes in support approaches that correspond to progress in recovery.

Keywords

emotional support; appraisal support; informational support; online support; alcohol use disorder

Introduction

Alcohol Use Disorder (AUD) is a chronic condition that affects a substantial proportion of the US and world populations. Globally, 5% (9% of men and 2% of women) are estimated to have been affected by an AUD in 2016 (Rehm & Shield, 2019). In the US, an estimated 14% of adults suffer from a past-year AUD and 29% are affected over their lifetimes (Grant et al., 2015). AUD frequently co-occurs with other mental health morbidities, and is associated with serious health complications and loss of life (Esser et al., 2020; Mintz et al., 2021; White et al., 2020; World Health Organization, 2018). AUD is also under-treated in the US, with 85% of past-year healthcare users being screened for AUD, but generally not receiving brief interventions or treatment when AUD is present (Mintz et al., 2021). However, recovery from AUD – defined as “a process through which an individual pursues both remission from AUD and cessation from heavy drinking” (Hagman et al., 2022, Figure 2) – is achievable in the absence of clinical care. Individuals commonly experience “natural recovery” via self-help approaches or rely on mutual help organizations such as Alcoholics Anonymous (AA) (Kelly et al., 2017; Pongsavee et al., 2021). While engagement in mutual-help groups is effective in improving AUD outcomes in recovery (e.g., reduction or cessation of drinking, improved health-related quality of life) (Kelly et al., 2020), barriers to engagement in these groups are high. These barriers include inequity in group availability (e.g., rurality), scheduling and logistics, social anxiety and stigma, and challenges in adopting spiritual or “alcoholic” identities (Miller et al., 2021; Romo & Obiol, 2021; Vederhus et al., 2009). In overcoming these barriers, people may turn to online support (e.g., recovery forums, social media communities), particularly within the first year of recovery (Gilbert et al., 2022). While online support may lead to engagement with in-person support, the efficacy of online support group participation in AUD recovery is not well-established (Bergman et al., 2017; Edward & Robins, 2012). In order to advance research toward efficacy studies of online support in AUD recovery, it will be important to understand community contexts of social support (e.g., different quantities and qualities

of support) that are common to and observable among diverse recovery forums. Our study sought to delineate distinct types of social support that are present in one such forum.

Based on conceptual foundations established by House (1981) and operationalized for health behavior research by Heaney and Israel (2008), we conceptualized social support as having four broad constructs: **instrumental support** (e.g., tangible aid, services, direct assistance), **emotional support** (e.g., empathy, caring, trust), **appraisal support** (e.g., normalizing experiences, evaluative feedback), and **informational support** (e.g., advice, instructions). This model was chosen based on its parsimony and conceptual foundations in social network theory, while alternative models (e.g., Cutrona & Suhr, 1992) exhibit both overlapping and diverging constructs (e.g., instrumental support otherwise called “tangible support”, “esteem support” and “network support” in place of appraisal support). Commonly theorized types of social support (e.g., emotional, informational) have been observed in online communities supporting a wide range of health conditions (Rains et al., 2015), including alcohol and substance use disorders (e.g., Liu et al., 2017; Liu et al., 2020; Klaw, Dearmin & Humphreys, 2000). Online communities for conditions with higher impact on personal relationships (such as AUD) exhibit relatively more emotional support, relatively less informational support, and very little tangible (i.e., instrumental) support. Across all online communities in the Rains et al. (2015) meta-analysis, informational and emotional support were the most common and tangible support was least common. However, no AUD communities were included and appraisal support was not evaluated in this study.

Specific to alcohol use, a broad theme of “supporting” in forums was proposed by Coulson (2014), and included features resembling emotional, informational, and appraisal support, though they were not operationalized at this granularity. In a study of support messages sent via an email listserv, informational support (37% of all posts) and emotional support (29%) were most common (Klaw, Dearmin & Humphreys, 2000). While appraisal support was not identified, aspects of this construct appeared to be integrated into the other categories. In MedHelp online forums for addiction, Chuang & Wang (2010) found that different types of online peer communication (e.g., forums, journals, notes) elicited different types of social support in an AUD support community. In a clinical study of individuals assessing peer social support in an AUD focused mobile app, receiving emotional support predicted favorable substance use outcomes (Liu et al., 2020). However, for alcohol use in particular, neither giving nor receiving support (emotional or informational) was associated with improved alcohol use outcomes. In this setting, Liu et al. (2017) also found that emotional support was most common, particularly in response to posts that expressed positive emotions, and informational support responses were primarily toward posts with negative emotions. Similar to aforementioned studies, appraisal support was not assessed.

Appraisal support – “provision of information that is useful for self-evaluation purposes—in other words, constructive feedback and affirmation” (Heaney and Israel, 2008, p190) – has been observed in online communities for various chronic health conditions (Hossain et al., 2021), but is not well-understood in the context of AUD recovery. However, it has been identified as a valued yet infrequently encountered type of support for patients in AUD treatment (Brooks et al., 2017). It is plausible that this dearth of perceived appraisal support relates to the sometimes critical nature of this communication (e.g., well-intended

criticism, encouraging critical self-evaluation). Perceived criticism in close relationships can be deleterious to addiction recovery outcomes (Fals-Stewart, O'Farrell & Hooley, 2001), and so may be averted or rendered counterproductive in close personal relationships. Personal criticism is also discouraged in support communities such as Alcoholics Anonymous, as it can be disruptive and reinforce hegemonic social structures within groups (Hoffman, 2006). Online communities that afford greater anonymity and informality may lower barriers for conveying critical appraisal support alongside other types of support for AUD recovery. Non-critical, "reassuring" appraisal support has also been noted as an emergent theme in AUD forum posts (Velmurugan et al., 2017). Additional focus on appraisal support, through the present research study, will aid in understanding its role in the context of AUD recovery.

In broader contexts of online mental health support, providing social support (as compared to receiving it) has been more strongly associated with positive health behaviors and outcomes (Hether et al., 2014). Provision of social support can be predicted by the presence of personal coping resources developed through receiving it (Lin et al., 2015). This aligns with a natural progression where supportive activity and self-disclosure increase alongside experience in addiction recovery and in related support forums (Chambers et al., 2017; Cooper, 2004). For example, people who misused prescription drugs commonly transitioned through behavioral stages of "using", "withdrawing", and "recovering" from drug use as they remained engaged in an online recovery forum (MacLean et al., 2015). From a community engagement perspective, behavioral changes can also be characterized as transitions from "lurking" (i.e., observation of a community), to active participation, and eventual community leadership (Chambers et al., 2017). As individuals acclimate to online support contexts, through experiencing and then providing support, they may gain greater potential benefit, foster others to provide support, and maintain interactivity necessary to sustain an active and thriving online recovery community. Online platforms in-turn provide various affordances (e.g., forum rules, community privacy, "friend" lists, "like" buttons, blogs or journals, private messaging) to facilitate active engagement in an organized way. These affordances influence how social support is conveyed in online AUD communities, for example, more informational support in response to forum posts as compared to personal notes or journals (Chuang & Wang, 2010). Types of social support offered are thus impacted by individual differences, social and community norms, and platform or forum affordances.

The Reddit social media platform is a novel venue for people who are seeking online social support in addiction recovery. Reddit differs from other popular social media platforms in its use of decentralized, topic-specific "subreddit" communities (e.g., r/Addiction, r/RedditorsInRecovery), its public nature, pseudo-anonymity, and transience of users (Ammari, Schoenebeck, & Romero, 2019). This encourages more in-depth and emotionally engaging discussion than would be common on other platforms (Choudhury & De, 2014). Among recovery-oriented subreddits, there are distinct rules and socially normative behaviors that influence social support (Andy & Guntuku, 2020). For example, Andy & Guntuku (2020) found that seeking both emotional and informational support in forum posts (i.e., new discussion threads) was positively associated with number of responses received in a cannabis-related recovery forum. In an opioid-related forum, however, seeking informational support was negatively associated with number of responses

received. As such, the dynamics of social support may function differently for different substances. Specific to alcohol use, the **r/StopDrinking (SD)** subreddit has received popular media attention as “the surprising Internet forum some alcoholics are choosing over AA” (Dewey, 2016). This forum supports a highly active and growing community of people who are trying to abstain from alcohol use (Colditz et al., 2021). Prior research on SD used computational linguistic approaches (e.g., Natural Language Processing and sentiment analysis) to classify types of language used within users’ posts (Harikumar et al., 2016; Tamersoy et al., 2015, 2017). A further qualitative study identified the salience of emotional, informational, and appraisal support content in posts (Velmurugan et al., 2017). These approaches offered important perspectives into topics discussed in SD *posts*, but limited insight into constructs of social support present in *responses*. By focusing on responses in the present study, we extend on this recent work to understand how support is provided in this online community. This work seeks to provide a conceptual foundation for future studies that can examine engagement among posts and comments, to understand the effect of supportive dialogue on forum participation and recovery trajectories. This also potentiates comparison of social support dynamics across recovery forums and platforms, to better understand common contexts of online support that may help to facilitate recovery from AUD and other substance use disorders. Using observable metrics (such as presence of social support) to advance mechanistic understandings of how online support might support addiction recovery fills important gaps in the literature, as identified in a systematic review by Ashford et al. (2020).

In the present study, we used a mixed-methods approach to characterize types of social support (i.e., instrumental, emotional, appraisal, informational) present in SD forum responses. This allowed us to develop operational definitions for human coding, to explore qualitative themes within and among support types, and to compare and contrast quantifiable characteristics of these messages. Specifically, we assessed quantitative features of text length, complexity, and emotional sentiment. We hypothesized that emotional support messages would be quantifiably distinct (i.e., shorter, less complex, invariably positive sentiment) from other types of support that might require greater experience or writing effort.

Materials and Methods

Our study design was a mixed-methods description of social support for AUD recovery as observed on the StopDrinking (SD) forum. Methods included text content analysis, thematic synthesis, and quantitative comparison of linguistic characteristics across identified types of social support. As this is a convergent (qualitative + quantitative) mixed-methods design, inter-related findings are thematically merged in the results narrative (Fetters et al., 2013). Data collection for this study was approved by the University of Pittsburgh Institutional Review Board.

Data Collection and Inclusion.

Reddit data are structured as original posts and associated comment responses that are threaded (i.e., comments nested under other comments). Posts generally originate from

individual users, though SD also hosts community-themed posts. For example, the “daily check-in” thread encourages users to respond with a brief affirmation to remain sober for the day. Publicly available data were collected from the SD forum using the Python-based *ReReddit* script, which collects real-time data from Reddit’s Application Programming Interface (Colditz, 2020). Study data spanned one continuous year beginning on 2018–10-01 to account for seasonal differences (e.g., holidays, Dry January) (Colditz et al., 2021). The full year of data included 77,033 posts with 578,289 **direct responses** (i.e., top-level comments) making up the majority of 892,191 total comments. To reduce the scope of data for feasibility of qualitative coding and synthesis, we used Python’s random number generator to select four random posts per day from the sample and evaluated the first direct response to it. Limiting the data to direct responses allowed us to focus on support being provided to the **original poster (OP)**. Responses were manually excluded if they originated from the OP (e.g., commenting to clarify on post content), were irrelevant (e.g., response to a community-themed post), were unavailable (e.g., blank, removed), or contained no identifiable support.

Codebook Development and Coding Procedures.

The codebook for evaluating responses to posts was based on an existing theoretical model and definitions of social support including: emotional support, appraisal support, informational support, and instrumental support (See Table 1). Codebook definitions were drawn from a conceptual model of social support established by House (1981), as operationalized for health behavior research by Heaney and Israel (2008). The codebook was further contextualized with relevant examples from the data and was considered final when inter-rater agreement for independently coded responses was at least “substantial” (> 0.60) using Cohen’s Kappa (*K*) coefficient (Landis and Koch, 1977). Cohen’s *K* was also used to evaluate inter-rater reliability in the final batch of double-coded data ($n = 64$ paragraphs; See Table 2). All responses were double-coded by student research assistants and coding disagreements were adjudicated under the supervision of the lead author. Posts were available to review to aid in contextualizing unclear responses during adjudication meetings. If a comment included multiple paragraphs, these were coded separately to identify discrete instances of the social support constructs. For content analysis, coders classified social support variables as present or absent and made annotations of emergent themes and salient quotes. In consort with the lead author, coders used a constant comparative method to synthesize themes and examples into resulting narratives (Olson et al., 2016). To respect the anonymity of SD users, user names were removed and direct quotes were rephrased (e.g., paraphrased, replacing words with close adjectives) to reasonably obfuscate identities of users (e.g., so that users can not be re-identified by reverse lookup of quotes). This was consistent with our approved Institutional Review Board protocol and good ethical practice in handling Reddit data (Proferes et al., 2021).

Quantitative Assessment.

We examined groupings and overlap among responses that contained multiple types of support using frequency counts and a proportional Euler diagram generated using *eulerAPE* software (Micallef and Rodgers, 2014). Quantifiable text metrics were further calculated

using *textstat-0.7.3* Python library. Three metrics were chosen to compare linguistic characteristics of responses:

- **Text Length** indicated the number of words and punctuation marks in a response. This was favored as more comprehensible than text character count, which would be redundant given the near perfect nonparametric correlation between word-based and character-based approaches to measuring text length (Spearman $r = 0.996$).
- **Complexity** was assessed using Gunning Fog and Flesch-Kincaid readability metrics (Mailloux et al., 1995). Central tendency and comprehensibility of scores was favorable for Gunning Fog (Mean = 6.1, SD = 4.5, Minimum = 0.4, Maximum = 40.4) as compared to Flesch-Kincaid scores (Mean = 4.2, SD = 4.6, Minimum = -3.5, Maximum = 43.8). As scores on these measures also demonstrated a strong nonparametric correlations (Spearman $r = 0.757$), we included only Gunning Fog scores in analysis for the sake of parsimony.
- **Sentiment** was assessed using “VADER” composite scores that account for positive, negative, and neutral sentiment to provide a probability-based estimate of overall sentiment along a continuum from negative to positive (Range: -0.99, +0.99) (Hutto & Gilbert, 2014).

We hypothesized that there would be significant differences in measured linguistic characteristics among responses containing different types of social support. Specifically, we anticipated that expressions of emotional support would be significantly shorter, less complex, and more positively valenced than other types of support. As observed data were non-normally distributed (Shapiro-Wilk test, $p < 0.05$), medians and inter-quartile ranges (IQR) were reported as measures of central tendency and non-parametric statistics were employed. We compared variables of Text Length, Complexity, and Sentiment between groups where a particular type of support was present versus absent. For each of the types of social support, we conducted Kruskal-Wallis H-tests with a Bonferroni corrected alpha threshold to adjust for the three independent comparisons being made (i.e., $p < 0.05$ adjusted to $p < 0.017$). To compare differences among distinct types of support, we selected responses where only one type of support was present and compared variables across groups. For this, we conducted omnibus Kruskal-Wallis H-tests and then Bonferroni-adjusted Dunn’s post-hoc tests for pairwise comparisons of median differences.

Results

Data Characteristics.

From the sample of 1,460 direct-responses, 2,136 paragraphs of text were coded. Of these, 74 responses (5.1%) were manually excluded for one of the following reasons: being in response to a community-themed post ($n = 8$ “Daily Check-in”; $n = 1$ “Sunday Solutions”), originating from the original poster ($n = 22$; e.g., addendum or clarification on the post), being removed (5 removals by moderator; 1 deleted by user), or having no identifiable support ($n = 37$; e.g., asking a clarifying question, not on topic, unintelligible). This resulted in 1,386 direct-responses (2,015 paragraphs of text) which included some type

of social support. In the final round of double-coding ($n = 64$ paragraphs), coders reached “substantial” agreement for appraisal support and “almost perfect” agreement for emotional support and informational support (Landis and Koch, 1977) (See Table 2). Among the coded sample of responses, emotional support was most common, followed by appraisal and informational support (See Table 2). 39.2% of responses contained more than one type of support. No responses indicated instrumental support, consistent with SD rules that discourage sharing tangible resources (e.g., money) and soliciting off-forum communication.

Thematic Synthesis of Social Support.

Overall, social support domains had substantial overlap and several contexts of observed support required further clarification to align with the conceptual domains (See Table 1). For example, personal narratives could be framed either as emotional support (e.g., anecdotal examples to establish shared experiences, “me too”) or as appraisal support (e.g., advice based on personal experiences and self-reflection). In addition to the thematic clarifications noted in Table 1, several themes emerged to better qualify these types of social support in the context of SD:

- **Emotional Support** included brief expressions of encouragement (e.g., “congratulations” “great job”, “keep going”), emotional alignment (e.g., “I feel that”, smiley/sad face or heart emoticon), sympathy (e.g., “so sorry”), or empathy (e.g., “that’s terrible”). The referent could be the OP (e.g., “you can do this”, “you’re looking great”), a sobriety-related accomplishment (e.g., “congrats on 3 days”) or challenge (e.g., “that sounds rough”), or some other quality of the narrative (e.g., “great story”). Emotional support also included common expressions of welcoming users to the forum (e.g., “glad you’re here”) and using the “IWNDWYT” acronym (i.e., “I Will Not Drink With You Today”). This acronym appeared in 339 (33.0%) whereas the phrase “not drink with you today” appeared in only 28 (2.7%) of emotional support responses. Responses with any emotional support were significantly shorter, less complex, and more positive than responses without it (See Table 3). Responses with only emotional support made up the largest relative proportion of all response types (See Figure 1), and they were significantly shorter, less complex, and more positive than responses including only appraisal or informational support (See Table 3).
- **Appraisal Support** largely normalized OP’s experiences (e.g., “the first few days are like that”, “slipping up is normal”, “if it were easy, I wouldn’t be here”), negatively appraised drinking behavior (e.g., “drinking will only make this worse”), and positively appraised recovery behaviors and outcomes (e.g., improved physical, mental, and social well-being). When responders posed reflective questions, they were inquisitive (e.g., “What was key to your success?”) and rhetorical (e.g., “How did that work out for you?”), and might be considered as harsh at times (e.g., “Do you like what you hear from yourself?”). Responders also provided narratives that were instructive about OP’s experiences or behavior. These could be personal experiences (e.g., staying sober at social gatherings, inability to moderate alcohol intake, managing co-morbid mental health conditions), hypothetical situations (e.g., “let’s say you try that”),

or allegorical scenarios (e.g., “drinking is like a bad ex-partner”, “How do you eat an elephant? One bite at a time.”). Appraisal support also included reframing OP’s perspectives around drinking and recovery behavior (e.g., “one day/moment at a time” instead of “a life sentence”, directing focus to something other than drinking). Responses with any appraisal support were significantly longer and more complex than responses without it, and their sentiment was not significantly different (See Table 3). Responses with only appraisal support were longer, more complex, and less positive than those with emotional support alone. They were not significantly different in complexity or sentiment from those with only informational support (See Table 3).

- **Informational Support** was relatively infrequent compared to other forms of support (See Figure 1); it included fact-based information (e.g., nutritional supplements to correct alcohol-related deficiencies), informed opinions (e.g., what to expect at AA meetings), and instructions (e.g., how to discretely order non-alcoholic beverages at a bar). Recommended external resources included clinical treatment (e.g., detoxification, residential treatment, outpatient therapy), in-person or video peer support (e.g., AA, SMART Recovery), and recovery self-help books (e.g., “This Naked Mind” $n=19$ mentions, “Alcohol Explained” $n=4$ mentions, “Big Book” $n=1$ mention). Other recommendations included non-alcoholic beverages (e.g., “Lime LaCroix”, non-alcoholic beer and “mocktails”), behaviors to reduce cravings (e.g., exercise, deep breaths, mindfulness), or approaches to social engagement (e.g., decisively turning down a drink, avoiding social drinking). Responses with any informational support were significantly longer and more complex than responses without it (See Table 3). Responses with informational support alone tended to be longer, more complex, and less positive than messages with emotional support alone, but shorter than those with appraisal support alone (See Table 3).

Thematic Overlap.

There was substantial intersection of emotional and appraisal support (See Figure 1; 26.5% of total responses). Appraisal support was similar to emotional support in that responses tended to affirm OP’s experience. Typically after making some emotional alignment, the responder further inquired into or appraised the qualities of OP’s experiences or behavior. This could have been a simple statement like “Yay! If you can do it today, you can do it again tomorrow.” or a more complex response involving expressions of support on different topics that OP brought forth (e.g., congratulations on OP’s current sobriety, positive appraisal of OP’s recovery strategies, negative appraisal of OP wanting to return to social drinking). This overlap was a salient topic in coder meetings, where we discussed the extent to which brief affirmations (e.g., “great job”, “that sucks”) alone constituted appraisal support. Unless there was a specific context identified where this feedback was considered useful for self-evaluation purposes, per codebook definitions (See Table 1), we regarded such brief utterances as standalone emotional support (e.g., validation, emotional alignment).

Where informational support intersected with only appraisal support (3.9% of total responses), information (e.g., recommended resource or approach) was justified by including appraisal narratives (e.g., how well that approach worked for the responder). Alternately, appraisals of OP's situation could inform an informational recommendation. For example, a response indicated that OP was rationalizing positive aspects of drinking and then recommended reading a specific book to understand negative aspects of drinking. Other responses appraised the OP's situation and guided them toward more reliable information (e.g., "that's a medical question and you should ask a doctor"). In a minority of overall responses (2.9%) at the intersection of informational and emotional support, recommendations and direct advice (e.g., instructions for doing something) were introduced with a brief emotional alignment or statement of encouragement. Finally, while there were relatively few supportive responses that had all three types of support (5.9% overall), these accounted for the greatest relative proportion (36.2%) of responses within the informational support domain (See Figure 1). These responses typically reflected contexts where the OP directly asked for information (e.g., recommendations on books, in-person support, treatment approaches) or expressed a concern warranting a specific course of action. For example, when an OP inquired about troublesome alcohol withdrawal symptoms, the respondent first empathized (e.g., "ugh – that sounds terrible") then appraised (e.g., "it's expected") and finally referred OP to an external resource or to take a specific action (e.g., "you should talk to a doctor about meds"). Responses with all three types of support generally followed this narrative structure.

Discussion

Overall, this study used a mixed-methods approach to characterize social support on the SD forum. The presence of distinct constructs for emotional, appraisal, and informational support is consistent with findings from prior inductive coding and thematic synthesis of SD content (Velmurugan et al., 2017), further justifying the use of these constructs in our deductive coding. Our work aligned these constructs with established conceptual definitions of social support, thereby systematizing coding procedures and deepening understandings of these theoretical constructs. As inter-rater agreement was strong and these support types had significantly different text characteristics (i.e., length, complexity, sentiment), the distinctiveness of emotional, appraisal, and informational support was apparent. This study also adds to the literature by quantifying the prevalence of social support in responses to posts in this online community, while prior work had focused on the content of the posts themselves. Consistent with prior work on online social support (e.g., Rains et al., 2015; Liu et al., 2017), we found that emotional support was most common in the SD forum.

We hypothesized that responses with **emotional support** would be shorter, less complex, and more positively valenced. This hypothesis was upheld, both for responses that contained *only* emotional support as well as for responses that contained *any* emotional support. Emotional support content was predominate in this sample and was included more often than not when other types of support were present. Emotional support thus presents as a staple of online social support in the SD community and includes brief text that might be considered as largely formulaic (e.g., "that sounds difficult", "you got this", "IWNDWYT"). Use of the IWNDWYT acronym as a popular catchphrase has also been noted in recent

studies that included content from SD (Gauthier et al., 2022; Monreale et al., 2022). While the “I will not drink with you” turn-of-phrase can be traced back to the *Aulularia* play, translated from 12th century Latin (Bennett, 1917), neither this catchphrase nor the acronym have been identified in literature pertaining to other online recovery forums. We surmise that this catchphrase may be unique to – or was at least popularized by – SD online culture. This acronym offers SD users a way to quickly and easily provide emotional support while also aligning with unique, normative language of the forum. Thus, the use of this catchphrase provides an opportunity for users to easily demonstrate online community affiliation (Androutsopoulos, 2006), which could potentiate development of a recovery-centric identity, community social capital, and reduced stress (Hall et al., 2019; Haslam et al., 2005). Given the popularity and relative ease of providing emotional support in this way, it may function as an important entry point into forum activity where forum users can then observe and model more dynamic forms of emotional support. Thus, our findings provide some indication of SD as a venue to quickly and easily exchange emotional support among people who could benefit from brief encouragement around abstaining from alcohol. It will be important to assess this supposition in studies that follow users over time, to determine how emotional support dynamics might change with greater recovery forum experience. As SD users gain greater experience in recovery and in using recovery forums, we expect that they would also develop a more heterogeneous approach to social support provision. That is, they will have a greater depth of lived experience to generate longer narratives that also include more appraisal and informational support.

While **appraisal support** and to a lesser extent informational support were also present in the SD community, it is important to consider that the content of such support might vary widely among different forums. For example, SD’s rule to “speak from the ‘I’” may be a limiting factor in the provision of direct instruction, which could explain the relative dearth of informational support identified in this study. As such, self-referential narratives containing appraisal support (e.g., *I wouldn’t do that if I were you*) appeared to be the preferred way to provide feedback about recovery approaches perceived as favorable or unfavorable by responders. We would also expect other Reddit forums like r/AlcoholicsAnonymous or r/AlcoholismMedication to provide different community perspectives (i.e., appraisals) on recovery-related questions. Thus, it is important to consider present findings about the content of appraisal support as limited to SD social support culture with an eye toward downstream studies that will compare how social support differs across forums. It will be further important to consider how people may transition among multiple forums or social media platforms. For example, SD may be an opportune venue for quick and emotionally supportive answers to basic questions about alcohol cessation. Yet people may turn to other venues to discuss harm reduction (e.g., Reddit’s public r/CutDownDrinking forum) or to exchange support among peers who have longer-term experience in recovery (e.g., Reddit’s private r/DinosaursInRecovery forum for people with more than one year of continuous sobriety). Thus, our exploration of social support on SD should be considered as a framework for broader studies of social support characteristics across heterogeneous forums. We posit that the analysis of appraisal support is a critical part of understanding individual messages and dialogues, as well as overall forum norms.

While **informational support** was relatively rare in SD responses overall, the qualitative content of these responses offer additional insight into the uniqueness of SD as an online culture. In particular, frequent mentions of “This Naked Mind” book align this forum with literature that is for people who “question whether drinking has become too big a part of their lives” (Grace, 2018). “Alcohol Explained” – a book mentioned in a number of responses – is an independently published self-help book that provides a formative understanding alcoholism for lay readers (Porter, 2015). This stands in contrast to only one mention of the “Big Book” that would align more closely with 12-step recovery culture (Bill W, 2019). As coalescence around self-help literature presents a natural window into community identity (Gauntlett, 2002; Peplow, 2014), we might understand SD as a self-help support community that is predominately aligned with early processes of alcohol use behavior change (e.g., contemplation, preparation). We would expect other forums to have different distributions of recommended books (e.g., more Big Book in r/AlcoholicsAnonymous) and resources (e.g., off-forum meetings), which would align with progression through later stages of behavior change (e.g., action, maintenance) (Patterson et al., 2010). These differences could indicate distinct online communities that are more-or-less favorable for people based on personal preferences and progression along a recovery pathway. Future research in this realm might further consider how people align with different online support communities and norms at different stages of behavior change in recovery.

The scope of this study was limited in four important ways. First, by focusing only on Reddit’s SD forum, we are unable to generalize these findings to other forums or social media communities. Nonetheless, as SD is among the most popular and active forums related to alcohol cessation and AUD recovery, this study presents an important guidepost to potentiate research in other forums and contexts (e.g., substance use or other mental health conditions). The second limitation in scope relates to generalizability of findings within SD. As the sample of responses was constrained for feasibility of human coding and as SD is a highly-active and dynamic forum (Colditz et al., 2021), our estimates of social support prevalence may not adequately reflect the current population of SD users. Our analysis also overlooks individual differences among users, who may have different approaches to social support commensurate with experience in online recovery forums. Thus, another important direction forward will be to conduct user-centric studies, and preferably longitudinal studies to determine how individual users’ support dynamics might differ and change over time. Third, we did not systematically evaluate post content to account for posts that directly sought specific types of support. For example, if a user asked for or provided information in the original post, then responses with informational support would seem most appropriate. Thus, it is important to further consider that forums may have different quantities or qualities of support based on the types of posts that are present. Fourth, as we assessed only the initial response to each identified post, our findings are biased toward responses that are quickest for users to provide (i.e., emotional support). Longer and more detailed responses (e.g., appraisal support, informational support) are likely to have appeared later in response threads. Nonetheless, the qualitative and quantitative differences among these types of support were striking. Future work should consider examining types of support that

are provided over time, within posts and discussion threads, as this would offer additional insights into conversational dynamics in this milieu.

Additional work in this area is warranted, particularly through computational linguistic approaches (e.g., natural language processing) that could reduce burden of manual coding of text data and overcome limitations of the present work. Developing computational processes to classify online social support would advance this research substantially to understand social support dynamics at scale (e.g., comparing comprehensive data across multiple forums, tracking support over time in discussion threads) and to develop interventions including real-time user feedback (e.g., social support profiling, personalized normative feedback). Thus, the present work provides a conceptual impetus to move beyond computational approaches like topic modeling (i.e., deriving topics from unsupervised language models) and toward identification of conceptually meaningful constructs (e.g., supervised learning to detect social support). The text data coded through the current project would lend well to those ends.

Finally, we suggest a continued focus on how providing (versus receiving) different types of support might impact recovery outcomes. For example, providing support could be envisioned as “service to others” in the recovery community, which would more closely align this work with that of in-person peer recovery research (Pagano et al., 2010). Considering the different types of online social support – each with distinct characteristics of length, complexity, and tone – we stand to learn a great deal about the role of both service and personal narratives in recovery through continued work. Ultimately, we hope that this leads to evidence-based recommendations for behavioral approaches to online recovery forum use, which translate into improved recovery outcomes among people suffering from AUD.

Support:

Dr. Colditz’s work was supported by the National Center for Advancing Translational Sciences Postdoctoral Fellowship (TL1-TR001858) at the University of Pittsburgh.

References

- Ammari T, Schoenebeck S, Romero D (2019) Self-declared throwaway accounts on Reddit: How platform affordances and shared norms enable parenting disclosure and support. *Proceedings of the ACM on Human-Computer Interaction*, 3(135):30.
- Androutsopoulos J (2006) Introduction: Sociolinguistics and computer-mediated communication. *Journal of Sociolinguistics* 10(4):419–438.
- Andy A, Guntuku S (2020) Does social support expressed in post titles elicit comments in online substance use recovery forums? [preprint article]. Available at: <http://arxiv.org/abs/2011.05103>. Accessed 25 June 2023
- Ashford RD, Bergman BG, Kelly JF, Curtis B (2020) Systematic review: digital recovery support services used to support substance use disorder recovery. *Human Behavior and Emerging Technologies* 2(1):18–32.
- Bennett CE (1917) Kroll on the independent Latin subjunctive. *Classical Philology* 12(2):121–131.
- Bergman BG, Kelly NW, Hoepfner BB, Vilsaint CL, Kelly JF (2017) Digital recovery management: Characterizing recovery-specific social network site participation and perceived benefit. *Psychology of Addictive Behaviors* 31(4):506–512. [PubMed: 28206780]

- “Bill W” (2019) *Alcoholics Anonymous: The Big Book*. Courier Dover Publications, New York.
- Brooks AT, Magaña López M, Ranucci A, Krumlauf M, Wallen G (2017) A qualitative exploration of social support during treatment for severe alcohol use disorder and recovery. *Addictive Behaviors Reports* 6: 76–82. [PubMed: 29430516]
- Chambers SE, Canvin K, Baldwin DS, Sinclair JM (2017) Identity in recovery from problematic alcohol use: a qualitative study of online mutual aid. *Drug and Alcohol Dependence* 174:17–22. [PubMed: 28282522]
- Choudhury M, De S (2014) Mental health discourse on Reddit: self-disclosure, social support, and anonymity. *Proceedings of the International AAAI Conference on Web and Social Media* 8(1):71–80.
- Chuang KY, Yang CC (2010) Helping you to help me: exploring supportive interaction in online health community. *Proceedings of the American Society for Information Science and Technology* 47(1):1–10.
- Colditz JB (2020) ReReddit: a Reddit scraper to capture real-time data and refereed updates. Python. [open-source software]. Available at: <https://github.com/colditzjb/ReReddit>. Accessed June 25, 2023
- Colditz JB, Rothenberger SD, Liebschutz JM, Rollman BL, Kraemer KL (2021) COVID-19 social distancing and online mutual help engagement for alcohol use recovery. *Journal of Addiction Medicine* 15(6):512–515. [PubMed: 33323691]
- Cooper G (2004) Exploring and understanding online assistance for problem gamblers: the pathways disclosure model. *International Journal of Mental Health & Addiction* 1(2):32–38.
- Coulson NS (2014) Sharing, supporting and sobriety: a qualitative analysis of messages posted to alcohol-related online discussion forums in the United Kingdom. *Journal of Substance Use* 19(1–2):176–180.
- Cutrona CE, Suhr JA (1992) Controllability of stressful events and satisfaction with spouse support behaviors. *Communication Research* 19(2):154–174.
- Dewey C (2016) The surprising Internet forum some alcoholics are choosing over AA. *Washington Post*, January 5, 2016. Available at: <https://www.washingtonpost.com/news/the-intersect/wp/2016/01/05/the-surprising-internet-forum-some-alcoholics-are-choosing-over-aa/>. Accessed June 25, 2023
- Edward K-L, Robins A (2012) Dual diagnosis, as described by those who experience the disorder: using the Internet as a source of data. *International Journal of Mental Health Nursing* 21(6):550–559. [PubMed: 22830579]
- Esser MB, Sher K, Liu Y, Naimi TS, Stockwell T, Stahre M, Kanny D, Landen M, Saitz R, Brewer RD (2020) Deaths and years of potential life lost from excessive alcohol use — United States, 2011–2015. *MMWR. Morbidity and Mortality Weekly Report* 69.
- Fals-Stewart W, O’Farrell TJ, Hooley JM (2001) Relapse among married or cohabiting substance-abusing patients: the role of perceived criticism. *Behavior Therapy* 32(4):787–801.
- Fetters MD, Curry LA, Creswell JW (2013) Achieving integration in mixed methods designs – principles and practices. *Health Services Research* 48(6pt2):2134–2156. [PubMed: 24279835]
- Gauntlett D (2002) Self-help books and the pursuit of a happy identity. In: *Extended Version of Material from Media, Gender and Identity: An Introduction*. Routledge, New York. Available at: <https://davidgauntlett.com/portfolio/media-gender-and-identity/>. Accessed June 25, 2023
- Gauthier RP, Costello MJ, Wallace JR (2022) “I Will Not Drink With You Today”: a topic-guided thematic analysis of addiction recovery on Reddit. *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* 20:1–17.
- Gilbert PA, Saathoff E, Russell AM, Brown G (2022) Gender differences in lifetime and current use of online support for recovery from alcohol use disorder. *Alcoholism: Clinical and Experimental Research* 46(6):1073–1083. [PubMed: 35717651]
- Grant BF, Goldstein RB, Saha TD, Chou SP, Jung J, Zhang H, Pickering RP, Ruan WJ, Smith SM, Huang B, Hasin DS (2015) Epidemiology of DSM-5 Alcohol Use Disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions III. *JAMA Psychiatry* 72(8):757–766. [PubMed: 26039070]

- Grace A (2018) *This Naked Mind: Control Alcohol, Find Freedom, Discover Happiness & Change Your Life*. Penguin, New York.
- Hagman BT, Falk D, Litten R, Koob GF (2022) Defining recovery from alcohol use disorder: development of an NIAAA research definition. *American Journal of Psychiatry* 179(11):807–813. [PubMed: 35410494]
- Hall L, Best D, Musgrove A (2019) Recovery and communities: the role of structure in stable addiction recovery and desistance. In: *The Architecture of Desistance* (Farrall S ed), Ch. 11. Routledge, London.
- Harikumar H, Nguyen T, Gupta S, Rana S, Kaimal R, Venkatesh S (2016) Understanding behavioral differences between short and long-term drinking abstainers from social media. In: *Advanced Data Mining and Applications* (Li J, Li X, Wang S, Li J, Sheng QZ eds), 520–533. Springer International Publishing.
- Haslam SA, O'Brien A, Jetten J, Vormedal K, Penna S (2005) Taking the strain: social identity, social support, and the experience of stress. *British Journal of Social Psychology* 44(3):355–370. [PubMed: 16238844]
- Heaney CA, Israel BA (2008) Social networks and social support. In: *Health Behavior and Health Education: Theory, Research, and Practice*, 4th Ed (Glanz K, Rimer BK, Viswanath K eds), 189–210. Jossey-Bass, San Francisco.
- Hether HJ, Murphy ST, Valente TW (2014) It's better to give than to receive: the role of social support, trust, and participation on health-related social networking sites. *Journal of Health Communication* 19(12):1424–1439. [PubMed: 24766297]
- Hoffmann HC (2006). Criticism as deviance and social control in Alcoholics Anonymous. *Journal of Contemporary Ethnography*, 35(6):669–695.
- Hossain SN, Jaglal SB, Shepherd J, Perrier L, Tomasone JR, Sweet SN, Luong D, Allin S, Nelson MLA, Guilcher SJT, Munce SEP (2021) Web-based peer support interventions for adults living with chronic conditions: scoping review. *JMIR Rehabilitation and Assistive Technologies* 8(2):e14321. [PubMed: 34032572]
- House JS (1981) *Work stress and social support*. Addison-Wesley, Boston.
- Hutto CJ, Gilbert E (2014) VADER: a parsimonious rule-based model for sentiment analysis of social media text. *Proceedings of the International AAAI Conference on Web and Social Media* 8(1):216–225.
- Kelly JF, Bergman B, Hoepfner BB, Vilsaint C, White WL (2017) Prevalence and pathways of recovery from drug and alcohol problems in the United States population: Implications for practice, research, and policy. *Drug and Alcohol Dependence* 181:162–169. [PubMed: 29055821]
- Kelly JF, Humphreys K, Ferri M (2020) Alcoholics Anonymous and other 12-step programs for alcohol use disorder. *Cochrane Database of Systematic Reviews*. Available at: 10.1002/14651858.CD012880.pub2. Accessed June 25, 2023
- Klaw E, Huebsch PD, Humphreys K (2000) Communication patterns in an online mutual help group for problem drinkers. *Journal of Community Psychology* 28(5):535–546.
- Landis JR, Koch GG (1977) The measurement of observer agreement for categorical data. *Biometrics* 33(1):159–174. [PubMed: 843571]
- Langford CPH, Bowsher J, Maloney JP, Lillis PP (1997) Social support: a conceptual analysis. *Journal of Advanced Nursing* 25(1):95–100. [PubMed: 9004016]
- Lin T-C, Hsu JS-C, Cheng H-L, Chiu C-M (2015) Exploring the relationship between receiving and offering online social support: a dual social support model. *Information & Management* 52(3):371–383.
- Liu Y, Kornfield R, Shaw BR, Shah DV, McTavish F, Gustafson DH (2017) When support is needed: social support solicitation and provision in an online alcohol use disorder forum. *Digital Health* 3:2055207617704274. [PubMed: 29942595]
- Liu Y, Kornfield R, Shaw BR, Shah DV, McTavish F, Gustafson DH (2020) Giving and receiving social support in online substance use disorder forums: how self-efficacy moderates effects on relapse. *Patient Education and Counseling* 103(6):1125–1133. [PubMed: 31901364]
- Mailloux SL, Johnson ME, Fisher DG, Pettibone TJ (1995) How reliable is computerized assessment of readability? *Computers in Nursing* 13(5):221–225. [PubMed: 7585304]

- MacLean D, Gupta S, Lembke A, Manning C, Heer J (2015) Forum77: an analysis of an online health forum dedicated to addiction recovery. *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*: 1511–1526.
- Micallef L, Rodgers P (2014) eulerAPE: drawing area-proportional 3-venn diagrams using ellipses. *PLOS ONE* 9(7):e101717. [PubMed: 25032825]
- Miller SE, Apsley HB, Cross-Ramirez M (2021) Potential benefits of online recovery services for women during and after COVID-19. *Journal of Studies on Alcohol and Drugs* 82(6):808–809. [PubMed: 34762042]
- Mintz CM, Hartz SM, Fisher SL, Ramsey AT, Geng EH, Grucza RA, Bierut LJ (2021) A cascade of care for alcohol use disorder: using 2015–2019 National Survey on Drug Use and Health data to identify gaps in past 12-month care. *Alcoholism: Clinical and Experimental Research* 45(6):1276–1286. [PubMed: 33993541]
- Monreale A, Iavarone B, Rossetto E, Beretta A (2022) Detecting addiction, anxiety, and depression by users psychometric profiles. *Companion Proceedings of the Web Conference 2022*: 1189–1197.
- Olson JD, McAllister C, Grinnell LD, Walters KG, Appunn F (2016) Applying constant comparative method with multiple investigators and inter-coder reliability. *The Qualitative Report* 21(1):26–42.
- Pagano ME, Krentzman AR, Onder CC, Baryak JL, Murphy JL, Zywiak WH, Stout RL (2010) Service to Others in Sobriety (SOS). *Alcoholism Treatment Quarterly* 28(2):111–127. [PubMed: 21399711]
- Patterson DA, Wolf S, Nochaski TH (2010) Combining the transtheoretical stages of change model and the 12 steps of Alcoholics Anonymous to monitor treatment progression. *Journal of Social Work Practice in the Addictions* 10(2):224–227. [PubMed: 23243392]
- Peplow D (2014) “I’ve never enjoyed hating a book so much in my life”: the co-construction of identity in the reading group. In: *Pragmatic Literary Stylistics* (Chapman S, Clark B eds), 152–171. Palgrave Macmillan, London.
- Pongsavee K, Payakkakom A, Phukao D, Guadamuz TE (2021) Natural recovery from alcohol: a systematic review of the literature 2006–2019. *Journal of Substance Use* 28(2):166–171.
- Porter W (2015) *Alcohol Explained*. CreateSpace Independent Publishing Platform.
- Proferes N, Jones N, Gilbert S, Fiesler C, Zimmer M (2021) Studying Reddit: a systematic overview of disciplines, approaches, methods, and ethics. *Social Media + Society* 7(2).
- Rains SA, Peterson EB, Wright KB (2015). Communicating social support in computer-mediated contexts: a meta-analytic review of content analyses examining support messages shared online among Individuals coping with illness. *Communication Monographs*, 82(4):403–430.
- Rehm J, Shield KD (2019) Global burden of alcohol use disorders and alcohol liver disease. *Biomedicine* 7(4):99. [PubMed: 31847084]
- Romo LK, Obiol ME (2021) How people in recovery manage the stigma of being an alcoholic. *Health Communication*. 38(5):947–957. [PubMed: 34583598]
- Tamersoy A, De Choudhury M, Chau DH (2015) Characterizing smoking and drinking abstinence from social media. *Proceedings of the 26th ACM Conference on Hypertext & Social Media*: 139–148.
- Tamersoy A, Chau DH, De Choudhury M (2017) Analysis of smoking and drinking relapse in an online community. *Proceedings of the 2017 International Conference on Digital Health*: 33–42.
- Vederhus J-K, Kristensen Ø, Laudet A, Clausen T (2009) Attitudes towards 12-step groups and referral practices in a 12-step naive treatment culture; a survey of addiction professionals in Norway. *BMC Health Services Research* 9(1):147. [PubMed: 19674454]
- Velmurugan M, Watson J, Bruce C (2017) Online peer-to-peer sobriety support: a conceptualization of the peer to peer social support mechanisms in an online ‘Stop Drinking’ community. In: *Proceedings of the 28th Australasian Conference on Information Systems*: 1–11.
- White AM, Castle I-JP, Hingson RW, Powell PA (2020) Using death certificates to explore changes in alcohol-related mortality in the United States, 1999 to 2017. *Alcoholism, Clinical and Experimental Research* 44(1):178–187. [PubMed: 31912524]
- World Health Organization (2018) *Global Status Report on Alcohol and Health 2018*. Available at: http://www.who.int/substance_abuse/publications/global_alcohol_report/en/. Accessed June 25, 2023

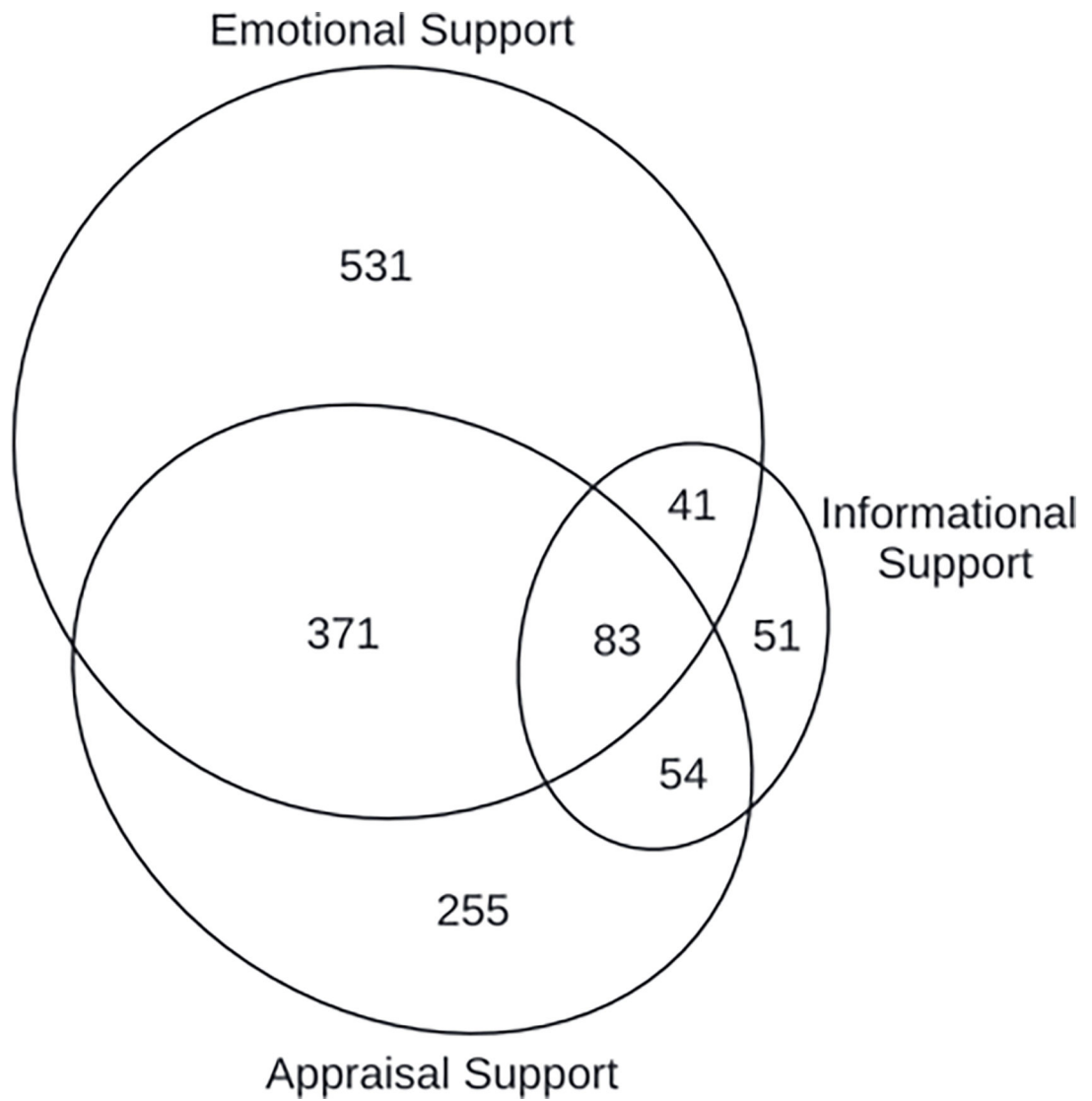


Figure 1. Frequency of responses within observed social support types ($n=1,386$)

Table 1.

Codebook definitions

Social support type	Definition (Heaney and Israel, 2008)	Further clarification
Emotional	provision of empathy, love, trust, and caring	<ul style="list-style-type: none"> • Responses or anecdotes that validate emotional states of the OP • Brief expressions of emotional alignment (e.g., “great job”, “I’ll not drink with you today”)
Appraisal	provision of information that is useful for self-evaluation purposes—in other words, constructive feedback and affirmation	<ul style="list-style-type: none"> • Open-ended questions that may lead to self-evaluation by the OP • Evaluation of OP’s intentions or behaviors (e.g., recovery approaches, social plans) • Advice framed through personal experiences
Informational	provision of advice, suggestions, and information that a person can use to address problems	<ul style="list-style-type: none"> • Recommendations for recovery resources and activities (e.g., books, treatment, support groups) • Direct answers to recovery related questions (e.g., how inpatient detox works, what to expect at AA meetings, how to complete a task)
Instrumental	provision of tangible aid and services that directly assist a person in need	<ul style="list-style-type: none"> • Sharing of contact information or physical resources (e.g., money, transportation, housing)

Abbreviations: OP = original poster, AA = Alcoholics Anonymous.

Table 2.

Prevalence of social support types and final inter-rater agreement

Social support type	<i>n</i> Responses (%)	<i>n</i> Paragraphs (%)	Cohen's K
Emotional	1026 (74.0)	1181 (58.6)	0.84
Appraisal	763 (55.1)	1055 (52.4)	0.77
Informational	229 (16.5)	293 (14.5)	0.81

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3.

Quantitative characteristics of observed social support

	n	Text Length		Gunning Fog		VADER	
		Median	IQR	Median	IQR	Median	IQR
Overall	1386	25	11–57	5.8	3.0–8.0	0.65	0.15–0.84
Responses with any of:							
Emotional	1026	21 ^a	10–50	5.2 ^a	2.5–7.5	0.71 ^a	0.44–0.86
Appraisal	763	48 ^a	26–87	6.7 ^a	5.0–8.3	0.65	0.00–0.87
Informational	229	60 ^a	35–107	7.1 ^a	5.7–9.1	0.65	0.00–0.90
Responses with only:							
Emotional	531	10 ^b	6–17	2.8 ^b	1.6–5.8	0.66 ^b	0.44–0.82
Appraisal	255	39 ^b	19–64	6.9	4.9–8.7	0.17	–0.30–0.69
Informational	51	25 ^b	13–42	7.2	5.0–10.6	0.00	–0.08–0.51

Note: Significant ($p < 0.001$) tests of median differences as:

^aKruskal-Wallis bivariable comparison to the inverse condition (i.e., lacking that type of support),

^bDunn's pairwise comparisons to both alternate types of support (both comparisons significant). Abbreviation: IQR = Inter-Quartile Range.