BRIEF REPORT

Postpartum heavy episodic drinking: A survey to inform development of a text messaging intervention

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Abstract

Introduction. Text messaging interventions (TMI) are promising for addressing heavy episodic drinking (HED) in non-treatment-seeking postpartum women. Their anonymous delivery can overcome fear of consequences that often prevents postpartum women from seeking treatment for HED. We assessed feasibility and acceptability of text messaging to inform the development of a tailored TMI for postpartum HED. **Methods.** We surveyed 165 postpartum women recruited via a national Qualtrics panel on their drinking behaviours, mobile technology use and TMI preferences. **Results.** Twenty-five percent of the sample (N = 41) were classified as heavy episodic drinkers, with significant drinking reported before, during and after pregnancy, supporting the need for intervention. Feasibility of text messaging was supported by nearly universal mobile phone ownership and text messaging. Attitudes and intervention preferences varied, with 30% of HEDs likely to participate in an intervention asking them to receive automated messages, and 46% likely to participate in an intervention that included live texting with a counsellor. Respondents were more likely to participate in a study that asked them to respond to messages about mood and stress (63%) than daily drinking behaviours (35%), and were most interested in a TMI that included live texting with a counsellor. Nearly half the sample endorsed fear of child removal as a significant barrier to participation. **Discussion and Conclusions.** Findings support the feasibility of text messaging as an intervention approach for postpartum HEDs. Postpartum women may have unique concerns and preferences that differ from other groups of HEDs, making a user-centred design approach critical. [Dauber S, West A, Hammond C, Cohen I, Thrul J. Postpartum heavy episodic drinking: A survey to inform development of a text messaging intervention. *Drug Alcohol Rev* 2021]

Key words: postpartum, heavy episodic drinking, text messaging, online survey.

Introduction

Heavy episodic drinking (HED), defined as single episode of consuming four or more drinks at once, is prevalent among women of childbearing age [1]. While most women reduce their drinking during pregnancy, more than half return to pre-pregnancy levels by 3 months postpartum [2], and 8%–12% show postpartum patterns of escalating HED [3].

If not treated, postpartum HED can lead to increased risk of child maltreatment [4]. However, postpartum women are unlikely to seek help for HED, due to pervasive stigma and fear of child removal that

heavily influence decisions about seeking care [5]. Despite the lack of formal treatment-seeking, new mothers are highly motivated to change negative behaviours that may impact their baby [6]. There is a critical need for innovative approaches to reach non-treatment-seeking new mothers that capitalise on this motivation while minimising stigma and fear.

Text messaging programs that deliver evidence-based motivational and skill-building interventions are promising for addressing postpartum HED. Text messaging allows for anonymous delivery of interventions, and is highly acceptable to substance dependent adults [7]. A growing body of literature supports text

messaging interventions (TMI) for reducing HED in non-treatment-seeking adults [8]. While there are no TMIs for postpartum HED specifically, TMIs for other health behaviours have demonstrated high satisfaction and retention in perinatal women [9,10].

We surveyed postpartum women to assess feasibility and acceptability of this approach to inform the development of a tailored TMI for postpartum HED. Study aims were to describe patterns of postpartum HED, and examine the use of mobile technology, attitudes towards TMIs and perceived barriers to participation in a TMI for postpartum HED.

Methods

Procedures

A cross-sectional survey was conducted in February 2020 using a national US Qualtrics panel. Qualtrics recruits panel participants from targeted email lists, social media platforms and other websites, and conducts verification checks on all panel participants. Panel participants provide informed consent and can earn credit towards retail rewards, airline miles or gift cards as incentives for completing surveys. Qualtrics sent invitations to panel members with an anonymous link to the voluntary online survey. Eligible participants were 18 years or older, gave birth to a live infant within the prior 6 months who was currently living with them, and reported an annual household income of $50 000 or less. Low-income women are particularly unlikely to obtain needed treatment for alcohol use [11]; thus, this population was considered a promising target for a TMI. A soft launch of the survey with 16 respondents revealed a median completion time of 9 min. Respondents who completed the survey in less than half of that time as well as respondents who did not complete all survey items were excluded. Qualtrics provided the research team with 170 responses that met eligibility and data quality criteria. Five additional respondents were excluded because they either reported the age of their youngest child as older than 12 months ($n = 4$) or refused to report the age of their youngest child ($n = 1$). The final analytic sample included 165 respondents.

Measures

Items assessing alcohol use were drawn from the Alcohol, Smoking, and Substance Involvement Screening Test, a brief validated screening tool that evaluates frequency and consequences of substance use [12]. Eight items assessed the frequency of drinking and binge drinking (four or more drinks at once) before, during and after pregnancy, current level of concern about drinking and desire for help. Five items assessed the indicators of severity, including strong urge to drink, alcohol-related problems, failure to meet expectations, concern of others and unsuccessful quit attempts. Respondents were categorised as heavy episodic drinkers if they reported any episodes of binge drinking during pregnancy or reported binge drinking at least monthly before pregnancy or postpartum [8].

Technology use questions [13] assessed mobile phone ownership, unlimited data and text plans and frequency of engaging in a variety of activities on their mobile phone, including sending and receiving text messages, using apps and searching for information. Respondents rated the perceived helpfulness of several ways text messaging could help new mothers with alcohol-related concerns. Respondents also rated their likelihood of participating in a TMI if they were asked to receive or send different types of text messages, and their preference for message frequency. Finally, participants indicated the extent to which five potential barriers would impact their decision to participate in a TMI.

Analyses

HEDs ($n = 41$) were compared to the remainder of the sample ($n = 124$) on demographic variables using χ^2-tests or independent samples t-tests, as appropriate. Descriptive statistics were used for remaining analyses. All analyses used SPSS version 27 (IBM Corp. Armonk, NY).

Results

Sample characteristics

Demographic characteristics are shown in Table 1. HEDs were significantly more likely than non-HEDs to be of Hispanic/Latina heritage, to report currently receiving public assistance and to report living with someone with a drug or alcohol problem.

Patterns of alcohol use

Twenty-five percent of the sample ($N = 41$) were classified as HEDs, and endorsed greater drinking frequency and severity than the non-HED sample (see Table S1). Before pregnancy, 20% of HEDs ($n = 8$) reported daily drinking, and 41% ($n = 17$) reported weekly or daily binge drinking. During pregnancy, 34% ($n = 14$) reported any drinking; of these, 43%

Table 1. *Comparison of heavy episodic drinkers (n = 41) and remaining survey respondents (n = 124) on demographic characteristics*

	Full sample N = 165		Heavy episodic drinkers N = 41		Remaining respondents N = 124		X^2 (df)	P
	N	%	N	%	N	%		
Age, years							1.96 (2)	0.38
18–25	65	39%	13	32%	52	42%		
26–35	85	52%	25	61%	60	48%		
36–45	15	9%	3	7%	12	10%		
Hispanic/Latina heritage	37	22%	14	34%	23	19%	4.31 (1)	0.04
Race							2.13 (3)	0.55
White	104	63%	27	66%	77	62%		
Black	32	19%	5	12%	27	22%		
Hispanic/Latina	19	12%	6	15%	13	11%		
Other	10	6%	3	7%	7	6%		
Education							0.85 (3)	0.84
Less than high school	5	3%	1	2%	4	3%		
High school or GED	65	39%	14	34%	51	41%		
Some college/technical school	57	35%	15	37%	42	34%		
College/tech school graduate or higher	38	23%	11	27%	27	22%		
Youngest child age							0.16 (3)	0.98
Younger than 1 month	14	9%	3	7%	11	9%		
1–3 months old	34	21%	8	20%	26	21%		
3–6 months old	82	50%	21	51%	61	49%		
6–12 months old	35	21%	9	22%	26	21%		
Youngest child gender							0.34 (2)	0.84
Male	81	49%	20	49%	61	49%		
Female	83	50%	21	51%	62	50%		
Prefer not to answer	1	1%	0	0	1	1%		
Current employment							4.43 (5)	0.49
Full-time	36	22%	8	20%	28	23%		
Part-time	25	15%	9	22%	16	13%		
Employed but on maternity leave	10	6%	2	5%	8	7%		
Not employed	87	53%	20	49%	67	54%		
Full-time student	4	2%	2	5%	2	2%		
Prefer not to answer	3	2%	0	0	3	3%		
Receiving public assistance	81	49%	27	66%	54	44%	6.71 (2)	0.04
Health insurance							3.94 (5)	0.56
Private	38	23%	7	17%	31	25%		
Medicaid	97	59%	27	66%	70	57%		
Other government plan	14	9%	5	12%	9	7%		
Other type of insurance	4	2%	0	0	4	3%		
No health insurance	6	4%	1	2%	5	4%		
Prefer not to answer	6	4%	1	2%	5	4%		
Relationship status							0.78 (4)	0.94
Single	34	21%	9	22%	25	20%		
Married	80	49%	19	46%	61	49%		
Living with a partner	45	27%	11	27%	34	27%		
Other	4	2%	1	2%	3	2%		
Prefer not to answer	2	1%	1	2%	1	1%		
Live with someone with drug/alcohol problem	11	7%	6	15%	5	4%	6.13 (2)	0.005
Currently breastfeeding	74	45%	18	44%	56	45%	0.02 (1)	0.89

(n = 6) reported binge drinking at least monthly. Postpartum, 83% (n = 34) reported any drinking; of these, 44% (n = 15) reported monthly binge drinking and 12% (n = 4) reported weekly binge drinking.

Since giving birth, 34% of HEDs (n = 14) reported a strong urge to drink at least weekly, and 12% (n = 5) were somewhat or very concerned about their drinking. Additionally, 10% (n = 4) reported an

unsuccessful quit attempt in the prior 3 months, with an additional 15% ($n = 6$) reporting an earlier unsuccessful quit attempt. Ten percent of HEDs ($n = 4$) endorsed currently wanting help with drinking.

Technology use

Ninety-five percent of HEDs owned a cell or smartphone, with 100% reporting unlimited text messages and 90% unlimited data. Text messaging was ubiquitous, with 85% of HEDs sending and receiving text messages daily/all the time, and 90% checking for text messages daily/all the time.

Attitudes towards TMIs

Nearly half (46%) of the HEDs rated receipt of automated text messages as helpful or very helpful for postpartum HED, whereas 59% rated live texting with a peer counsellor or treatment provider as helpful (Table 2). Only 30% of HEDs were likely to participate in a TMI asking them to receive text messages, whereas 46% were likely to agree to participate in a TMI that involved live texting with a counsellor. Participants were most likely to agree to participate in a TMI that asked them to receive text messages asking about mood and stress (63%) and to text with a peer counsellor about drinking (53%). Only 35% of HEDs were likely to participate in a TMI in which they would receive text messages asking about daily drinking. The greatest barrier to participation was fear of child removal, reported by nearly half of the sample (Table 2). More than 70% of HEDs were willing to receive automated messages and respond to short surveys at least once a day, and more than a quarter were willing to do so three times a day or more.

The non-HED sample reported similar attitudes and preferences towards TMIs as the HED sample (see Table S2). Notably, the HED sample was significantly more likely to report fear of child removal as a barrier to participation than the non-HED sample.

Table 2. *Attitudes towards text messaging interventions among heavy episodic drinkers (N = 41)*

	N	%
How helpful would each of the following be in helping new mothers with concerns about alcohol use (% responding helpful or very helpful)		
Receive automated text messages with information about risks of drinking	18	44%
Receive automated text messages with practical tips for avoiding drinking	19	46%
Text with a peer counsellor	23	58%
Text with a treatment provider	24	59%
How likely would you be to agree to participate in a research study if you were asked to do the following (% responding very or extremely likely)		
Receive automated text messages with information about risks of drinking	17	42%
Receive automated text messages with practical tips for avoiding drinking	12	30%
Text with a peer counsellor about drinking	21	53%
Text with a treatment provider about drinking	19	46%
Receive text messages asking you about your mood and stress level	25	63%
Receive text messages asking you about your drinking that day	14	35%
How much would each of the following factors impact your decision about whether or not to participate in the research study (% responding very much or a lot)		
I would worry that it would take too much time	6	15%
I would worry that my answers would not be confidential	11	27%
I don't think a text messaging intervention would help me	8	20%
I would worry about my children being taken away	20	49%
I would worry that the text messages would annoy me	18	44%
How many times a day would you be willing to receive automated text messages?		
Once a day	12	29%
Twice a day	3	7%
Three times a day or more	14	34%
Never	12	29%
How many times a day would you be willing to respond to a short survey via text message?		
Once a day	15	37%
Twice a day	7	17%
Three times a day or more	10	24%
Never	9	22%

Discussion

We surveyed postpartum women on patterns of HED, technology use and intervention preferences to inform the feasibility and acceptability of a TMI for postpartum HED. Twenty-five percent of the sample were classified as HEDs, which is comparable to

recent national data in which 22% of women over 18 reported past-month binge drinking [14]. Our findings suggest that there may be a significant subgroup of postpartum HEDs who report frequent strong urges to drink, weekly binge drinking or serious concerns about their drinking, supporting the need for interventions.

Feasibility of TMIs was supported by high rates of mobile phone usage for texting and other applications, consistent with other studies of low-income, racially diverse postpartum women [15]. Findings on acceptability of text messaging as an intervention approach for postpartum HED were mixed. Consistent with other studies demonstrating the acceptability of text messages asking postpartum women about mood and depression [10], we found that messages containing questions about mood and stress were more acceptable than those asking directly about daily drinking. Respondents viewed synchronous approaches that included live texting with a peer counsellor or treatment provider more positively than asynchronous automated messages. Digital interventions that include a human interaction component are generally preferred by users [7], including postpartum women [16], but are not necessarily more effective [17].

The single greatest barrier to participation reported by nearly half the HED sample was fear of child removal. While digital interventions have been associated with reduced stigma and fear, highly vulnerable populations often report concerns about security and privacy of data [18]. Postpartum women have described tension between the desire for help overcoming the substance use for the sake of their baby and the fear of repercussions following disclosure, which often prevents women from obtaining needed help [6]. A TMI that can be accessed anonymously could theoretically overcome this barrier; however, our findings suggest that there may still be a significant amount of discomfort to address.

Generalisability is limited to the small sample of English speakers willing to complete an online survey. Additionally, the number of participants who were excluded due to incomplete data is unknown. Finally, there may be additional barriers to participation that were not assessed, such as concern about others seeing the text messages.

Our findings suggest that postpartum women may have unique concerns and preferences that differ from those of other groups of HEDs that must be addressed when designing a TMI for this group. Specifically, heightened concerns about confidentiality due to the fear of child removal may lead to underreporting of alcohol use and hesitancy to participate in a TMI that directly targets drinking. Couching interventions for drinking within a TMI aimed at health behaviours more generally may increase acceptability. Preferences for synchronous approaches could be addressed by including an option to text with a peer counsellor. Findings highlight the need for user-centred design [19] in developing a TMI that is specifically tailored for postpartum HEDs to ensure acceptability and adequate attention to unique barriers to help-seeking.

Acknowledgements

Conflict of Interest

The authors have no conflicts of interest.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Table S1. Comparison of heavy episodic drinkers ($n = 41$) and remaining survey respondents ($n = 124$) on alcohol use variables.

Table S2. Comparison of heavy episodic drinkers ($n = 41$) and remaining survey respondents ($n = 124$) on attitudes towards text messaging interventions.