Reviewer’s report

Title: A Feasibility Study of Short Message Service Text Messaging as a Surveillance Tool for Alcohol Consumption and Vehicle for Interventions in University Students

Version: 1 Date: 5 March 2013

Reviewer: James Murphy

Reviewer’s report:

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore) = DR
- Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct) = MER
- Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached) = MCR

“A Feasibility Study of Message Service Text Messaging as a Surveillance Tool for Alcohol Consumption and Vehicle for Interventions in University Students” is a well written paper whose topic is likely to be of interest to the readership of BMC Public Health. The authors conducted several pilot studies to investigate the potential utility of using cellular telephone delivered “SMS text messages” for the assessment of alcohol use among young adults. Although the specific findings from these studies are limited by the relatively low Ns and some compliance problems (texts were initially delivered to drinkers at 7 AM after a night of drinking, which predictably resulted in poor compliance; compliance was also likely reduced by the use of a lottery incentive for completing text rather than a fixed payment) the overall paper provides a practical example of the potential utility of text messages in alcohol research. It also provides researchers and clinicians with qualitative participant reactions that might improve compliance in future studies. The interviews with completers and non-completers are potentially informative, but more information could be presented, perhaps in a table (what were participants suggestions for improving compliance?). Rationale for the potential relevance, convenience, and low cost of text messaging as an alcohol intervention platform for young adults is compelling. This study contributes to the literature on both college drinking behavior and technological advances in behavioral interventions by examining the utility of this modality as a potential intervention tool for college students who may want to change their drinking behavior. This study has several strengths including the utilization of both qualitative and quantitative methodology to assess feasibility of the intervention. Furthermore, the topic and content area are important and the paper is generally well-written. Despite these strengths, there were several concerns and suggestions that are outlined below related to the focus, analytic approach/analyses and methodology of this study. The primary concern, other than the sample size and retention issues, is the fact that the paper is a bit
disjointed in its effort to present 4 studies (MCR but specifics of revision = DR). Personally, I think the most valuable contribution is the presentation of the process of obtaining data, the qualitative results, and the intervention results. I found the descriptive data concerning the impact of day of the week and holidays on drinking to be slightly less compelling (due to the fact that this was a convenience sample) and to distract a bit from the overall focus on the paper. Alternatively, the authors might elect to retain studies 1-3 and omit the intervention study.

Abstract

1) Please clarify the phrase “Sampling continued to saturation” [MER]

Intro

2) Please define “bespoke applications for smart phones” [MER]

3) Nice review of SMS interventions across health risk behaviors. Provide some brief mention of other relevant technologies for collecting real time alcohol data (IRV, web based or palm top computer “surveys” that allow participants to quickly enter in slightly more detailed information than a text – Darokes and Goldman; Barnett; and Tiffany have conducted studies similar to this using web-based data collection. What are the advantages and disadvantages of SMS relative to web-based data collection?). [MER]

4) Clarify how the current study specifically extends results of Kuntsche and Robert. Be more specific in the intro about how each of the 4 studies you are conducting extends previous research, including US literature on event specific drinking prevention (e.g., Neighbors, Lewis, Larimer etc.) [MER]

Method

5) The distinction between study 1 and 2 is unclear. It appears that they were generated from the same data set and it might improve the flow of the paper to collapse these 2 studies? The paper is well written but disjointed. [see above, MCR, but specific approach to condensing = DR]

6) Please provide more detail on the measures, including FAST and AUDIT. [MER]

7) Please provide more details on procedures to enhance compliance - what was done if people were not responsive to texts – any efforts to call or send additional texts? [MER]

8) Study 3 - Define “sampling to saturation” [MER]

9) Use of lottery based incentives may have reduced enrolment and thus generalizability of results – should be noted as limitation [MER]

10) This is speculative, but I wonder if compliance would have been improved if
the study started with an in person session to problem solve and enhance motivation for participation? [DR]

11) Study 4 - What was the rationale for providing a rough estimate of monetary expenditures as the only intervention element? Could have provided normative feedback or assessed actual expenditures [DR]

12) Sample was 92% undergraduate – may introduce error to include small % of non-students – were analysis replicated within exclusive student sample? [MER]

13) Did “Validation” analysis looking at associations between baseline FAST scores and drinking reports on text messages include only those who consistently responded to texts? What was the threshold for inclusion? Would have been much stronger methodologically to have included an established criterion measure of drinking such as the TLFB, that provides detailed drinking estimates to compare to the SMS reports. The AUDIT and FAST are problem measures and your use of SMS was as a means of consumption. [DR]

14) Authors initially used 7 AM text messages – this early time may have significantly increased attrition and may therefore bias the results (exaggerate expected attrition in similar future studies). Is there anyway to estimate the impact this had on compliance? [DR]

15) The authors state that “48 participants responded twice to these two SMS messages and therefore provided an opportunistic means of testing the internal validity of daily responses. A longitudinal panel regression model was constructed and a significant association between first and second daily responses observed (# = 0.185, p < 0.05, 95% CI 0.039 0.331) for this subset of participants.”

This actually seems like poor correspondence given that it was the same person reporting twice in the same day on their drinking the previous day. Can the authors clarify the nature of the discrepancies or any characteristics association with incongruent reports? [MER]

16) The authors state “The first model considered whether the reported units of consumption on the preceding day influenced the likelihood of alcohol use on the following day.”

-Please clarify - should this be whether alcohol use influenced responding to the text on the next day rather than drinking the next day? Would have been nice to be able to get missing data in some cases (e.g., 2 days later) to determine if missing data typically occurred on drinking days. [DR]

18) Given that the study sample was not large and representative, I’m not sure if the descriptive analyses looking at drinking as a function of day of the week and holidays is informative. Please justify how this extends previous research on this topic. [DR]

19) Study 3 – The authors note “In respect of content, advertising the negative consequences of excessive consumption were seen as aversive for three
participants, beneficial for two and the remaining 13 suggested emphasising the positive with the negatives would likely provide the most effective intervention content. The consensus was that content that “grabbed attention” but did not come across as “parenty” was the best overall approach.

This information seems irrelevant to this current study as it is not specific to text messaging. I would suggest removing to tighten the paper. [MER]

20) The authors noted “Participation in the repeated online surveys showed a heightened level of attrition; only 33% of those who completed the first online survey completed the final one, undermining this medium as a means of collecting long-term information when prompted with text messages to do so.”

- Please clarify that these implications may be specific to the incentive structure and more general motivational context of the present study (it is possible that with better incentives and enhanced motivation compliance would be much better). [MER]

21) Why is study 4 the only one to look at outcomes by student status? What are the numbers in each cell? [DR]

22) The authors note “Further, there was a positive association between quantity consumed and time taken to respond to SMS messages the following day. If this delay is also associated with more salient behaviours then alcohol consumption might also be associated with diligence in respect of course work in this student cohort.”

- Please clarify this statement. [MER]

23) Again, I think the paper attempts to integrate too much data; it might be better to just focus on the validity and feasibility of SMS data rather than using the data collected in this pilot study to make conclusions about drinking patterns as a function of holidays/calendar. More detail on results of study 3 and 4 would be preferred. [DR]

24) The authors state “For example, in the student population the intervention may focus on the financial incentive of reducing drinking, perhaps by sending an automated message containing an estimation of how much money they have spent so far during their night out or over longer periods. In other populations, such as those attending Emergency Departments as a result of alcohol-related harm, the content of a text message intervention may contain a warning about the potential harm that could result if a person continues to drink.”

- I suggest changing this to avoid the implication that the focus on harm is not relevant to university populations - student drinkers have high levels of harmful consequences associated with their drinking (and feedback on harm is a key ingredient of successful brief interventions). [MER]

25) In the description of the validation analyses was gender entered as a covariate? [MER]

26) The authors may also consider framing the validation analyses as an
examination of convergent validity instead of “external” validity (Shadish et al., 2002). [DR]

27) Technical Issues: Although it is understandable that technical complications often arise when using SMS technology in research, it would be helpful if the authors could elaborate on the details of this issue and its implications for their results. The explanation of the correction is unclear, and the phrase “opportunistic means of testing the internal validity of daily responses” is confusing. [MER]

28) Analytic Strategy: The rational for the analytic strategy taken is also unclear. Specifically, the rationale for using a cubic spline interpolation is not stated. While this strategy was presumably taken to increase power (given the small sample size of 28), the authors do not provide a significant amount of information to evaluate the appropriateness of this approach. Furthermore, the rationale for continuing to explore the relation between AUDIT and FAST scores and drinking consumption (after the initial relation was not significant) is not clear. Lastly, the information about drinking patterns is interesting (however, as mentioned previously, I would consider omitting it for this particular manuscript). If the authors feel that this information is germane to the manuscript, I would suggest examining this data using latent growth curve modeling. By modeling both drinking patterns over the course of the study and participants’ number of responses over the course of the study, the authors examine the following: change in both drinking and participation over time, the relation between participants’ initial participation and drinking over time, and/or the relation between participants’ initial drinking consumption (FAST, AUDIT) and change in their participation over the course of the study. [DR]

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests