



# Can Amazon's Mechanical Turk be used to recruit participants for internet intervention trials? A pilot study involving a randomized controlled trial of a brief online intervention for hazardous alcohol use



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## ABSTRACT

**Objectives:** To determine whether Amazon's Mechanical Turk (MTurk) might be a viable means of recruiting participants for online intervention research. This was accomplished by conducting a randomized controlled trial of a previously validated intervention with participants recruited through MTurk.

**Methods:** Participants were recruited to complete an online survey about their alcohol use through the MTurk platform. Those who met eligibility criterion for age and problem drinking were invited to complete a 3-month follow-up. Those who agreed were randomized to receive access to an online brief intervention for drinking or were assigned to a no intervention control group (i.e., thanked and told that they would be re-contacted in 3 months).

**Results:** A total of 423 participants were recruited, of which 85% were followed-up at 3-months. All participants were recruited in 3.2 h. Only 1/3 of participants asked to access the online brief intervention did so. Of the 4 outcome variables (number of drinks in a typical week, highest number on one occasion, number of consequences, AUDIT consumption subscale), one displayed a significant difference between conditions. Participants in the intervention group reported a greater reduction between on the AUDIT consumption subscale between baseline and 3-month follow-up compared to those in the no intervention control group ( $p = 0.004$ ).

**Conclusions:** Despite the current pilot showing only limited evidence of impact of the intervention among participants recruited through MTurk, there is potential for conducting trials employing this population (particularly if methods are employed to make sure that participants receive the intervention). This potential is important as it could allow for the rapid conduct of multiple trials during the development stages of online interventions.

## Trial registration

ClinicalTrials.gov # NCT02905123

## 1. Introduction

Amazon's Mechanical Turk (MTurk) is an online platform in which more than half a million people have registered as 'workers' ([www.mturk.com](http://www.mturk.com)). The worker then chooses tasks (often surveys) to complete through MTurk. Amazon provides the platform for this work and acts as the mediator for secure payment to workers.

MTurk has become a popular means of collecting survey data in

some areas of psychology (Buhrmester et al., 2011; Chandler and Shapiro, 2016; Daly and Natarajan, 2015; Litman et al., 2016; Shapiro et al., 2014; Wiens and Walker, 2015). Further, participants with problem drinking, gambling, or even illicit drug use have been recruited through MTurk (Kim and Hodgins, 2017; Kristan and Suffoletto, 2015). There is also the possibility that participants for online longitudinal studies could be identified through MTurk, including for brief intervention research. The potential to quickly and easily identify large numbers of participants for online trials is important for research evaluating online interventions during the period that these interventions are being developed and refined. This is because such a study participant pool could then be repeatedly tapped to test the impact of

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different versions of an intervention (e.g., treatment dismantling studies to identify active ingredients of an intervention).

However, before proposing MTurk workers as a viable source for participants in such trials, it is important to evaluate the feasibility of using MTurk for such a purpose. This pilot study proposed to test this feasibility by systematically replicating a trial of an extensively evaluated brief online intervention for hazardous alcohol use ([CheckYourDrinking.net](http://CheckYourDrinking.net); CYD) employing participants recruited through MTurk. The goals of the pilot were: 1) to establish whether it is possible to recruit participants quickly using MTurk and to then obtain a good follow-up rate; 2) to examine whether participants would access the intervention; and 3) to test whether a significant impact of the intervention could be observed.

## 2. Methods

### 2.1. Recruitment

Potential participants were recruited using a three stage process. The study was approved by the CAMH Research Ethics Board.

#### 2.1.1. Stage 1 of recruitment

Participants were recruited through Amazon's MTurk crowdsourcing platform. A brief description of the survey was posted on MTurk, "The Centre for Addiction and Mental Health is conducting a survey on people's drinking. Only people who currently drink alcohol are asked to participate," with a link that interested potential participants could click on to access the online consent process and complete the study survey. The advertisement of the survey on MTurk was restricted to workers from Canada or the US, who had MTurk reputations of 95% or higher, and those who had completed at least 100 hits to ensure data quality (i.e., completed 100 tasks on MTurk and did not have their work rejected and returned for at least 95 of these tasks) (Peer et al., 2014). Potential participants who clicked on the link were sent to a webpage providing a brief description of the survey. Those who clicked on the link at the bottom of the brief description completed a brief eligibility screener (eligibility questions comprised of being 18 years of age or older and having consumed alcohol weekly or more often in the last year). Those who were found eligible were sent to an electronic consent form. Those not found eligible were thanked for their participation.

#### 2.1.2. Stage 2 of recruitment

Participants identified as eligible confirmed their willingness to participate by accepting that they had read and understood the research and their rights as described on the consent form. The Stage 2 consent form contained the information that some participants would be invited to take part in another study. Those consenting then completed the the baseline survey. This survey assessed demographics (age, sex, education, marital, family income, employment status and ethnic origin), the Alcohol Use Disorder Identification Test (AUDIT; with drinking items framed to ask about the last three months) (Saunders and Conigrave, 1990), number of drinks in a typical week and highest number of drinks on one occasion during the last three months, and number of consequences associated with drinking in the last three months (10 items adapted from Wechsler et al., 1994 with one item added asking about driving under the influence of alcohol) (Wechsler et al., 1994). The survey included a picture that showed standard drink sizes for beer, wine, and liquor (based on a drink size of 13.6 g of alcohol). Any use of alcohol related treatment access was measured using the single item screener taken from the National Epidemiological Survey on Alcohol and Related Conditions (Grant et al., 2003). In addition, four attention check questions were asked, nested within the other survey items. Participants were paid US\$1.50 for completing the 10 min Stage 1 survey, in the form of an MTurk payment (note: Amazon charges a 40% fee on top of the \$1.50 paid to each participant). This honorarium amount is in line with what has been collectively deemed as a fair

reward rate/amount by MTurk participants. No personally identifying information was collected within the survey, as MTurk prohibits the collection of this information from workers (please see [https://requester.mturk.com/help/faq#restrictions\\_use\\_mturk](https://requester.mturk.com/help/faq#restrictions_use_mturk) for full policies). Workers' identification numbers were collected and visible on MTurk for the purposes of compensating individuals, however this ID does not grant researchers access to any identifying information.

#### 2.1.3. Stage 3 of recruitment

Upon completing the Stage 2 baseline survey, all participants were thanked for completing the survey and paid. Participants who scored 8 or more on the AUDIT (indicating current hazardous alcohol use), who reported that they had provided accurate answers and that we should keep their data, and who endorsed all four attention check questions correctly, were then sent to a page inviting them to take part in another study. These participants were asked if they would be willing to complete another survey in three months' time that asked about their drinking experiences during that time period. Further, they were told that some people would also be provided access to some more information about drinking, but that we did not know if they would receive this information at this time. However, if they did receive access to this additional information, they would be asked their impressions of it as part of the three-month survey. Finally, participants were informed that they would be paid US\$10 through the MTurk portal upon completion of the three month follow-up survey. The MTurk portal allowed for sending the three-month follow-up survey to the specific participants who had agreed to take part in the follow-up. Researchers had no access to any information that could lead to personal identification of participants.

### 2.2. Randomization, experimental conditions and follow-up

Participants who agreed to complete the three-month follow-up survey were randomized (1:1 ratio with no stratification) to receive access to the Check Your Drinking screener (CYD condition) or to a no additional information condition (control condition). Those assigned to the CYD condition were told that they would be sent an email through the Mturk portal with a link to a website that would let them see how their drinking compared with others and that they would be asked their impressions of this website on the next survey. The email (sent the same day as the completion of the baseline survey) contained a link and password to a study portal that recorded which passwords had been used and provided each participant with a study specific version of the CYD. Those participants who did not use their password within one week were recontacted by email to request that they access the portal. Participants in the no intervention control condition were thanked for their participation and told that they would be contacted by email in three months' time to complete the follow-up survey. At the three-month follow-up, the MTurk portal was used to send invitation emails that contained a link to the survey. If the participant did not respond, this email was resent as a prompter 3 and 7 days later. The three-month follow-up survey asked the same drinking and drinking consequence items as the baseline survey, as well as any use of treatment services (all framed for the last three months).

### 2.3. The check your drinking (CYD) intervention

The CYD is a brief, personalized feedback intervention (Cunningham et al., 2009). Participants provide some brief demographic information about their age, sex, weight, typical cost of a drink, and country of residence, as well as 18 questions about their drinking (AUDIT, drinking in a typical week, highest number on one occasion, experience of consequences). The participant is provided with a final report that summarizes their drinking and compares it with others of the same age group, sex, and country of residence (at least for participants from Canada, the USA, and the U.K.). The efficacy of the CYD

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