Data Article

Images of Australian alcoholic and non-alcoholic beverages: A validation dataset

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A R T I C L E   I N F O

A B S T R A C T

For multi-session alcohol cognitive bias modification, a large image dataset depicting both alcohol and non-alcoholic beverages is required. We photographed a wide range of beverages and then validated them in a group of Australian community participants: 47 women and 39 men, aged from 18 to 73, who drank alcohol at least occasionally in the last year, with Alcohol Use Disorder Identification Test (AUDIT) scores ranging from 1 to 33. Participants were asked to categorize images as alcoholic vs non-alcoholic, rate the familiarity of each beverage and rate their craving for each beverage. The dataset includes all images and ratings for each image, stratified by gender and high/low AUDIT scores. Mean ratings per participant per beverage category are also provided.

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Specifications Table

Subject	Experimental and Cognitive Psychology
Specific subject area	Cognitive bias modification is an experimental intervention for alcohol use disorder in which participants' attention or behavioral responses are trained away from alcohol images and towards non-alcohol images. Retraining sessions tend to be repeated multiple times and a large range of images are required to prevent excessive image repetition (and potential habituation).
Type of data	Images
	Craving ratings, familiarity ratings and categorization accuracy
How the data were acquired	Images: Eighteen alcoholic beverages and 19 non-alcoholic beverages were photographed against a plain white background in three different passive contexts – bottle only (closed), bottle open (with empty glass next to bottle), bottle opened with full glass next to bottle. In addition, nine images depicting alcohol and seven images depicting non-alcoholic beverages from the Australian Beverage Picture Set [1] were downloaded and included in the Validation Study.
	Validation Study: Using convenience sampling, participants were recruited from various platforms in Australia – Facebook, Gumtree, Airtasker and Prolific (restricted by location). Participants received $10 for completing the validation study online. The experiment was programmed in jspsyc and is available at https://osf.io/rbukz. Participants were first asked to categorize images as being either alcoholic or non-alcoholic, they then saw a subset of the images and were asked to rate their familiarity. They then rated their craving for each beverage before completing the Audit Use Disorders Identification Test [8] and providing demographic information. Data from 93 participants is available in the dataset [9].
Data format	Raw
	Analyzed
Description of data collection	Advertisements specified that participants could earn $10 for participating in a study in which they would be asked questions about different beverages (including alcoholic beverages). Participants were provided with a link to participate in the study in their own time.
Data source location	Participants based in Australia completed the study online.
Data accessibility	Repository name: Open Science Framework
	Data identification number: DOI:10.17605/OSF.IO/RBUKZ
	Direct URL to data: https://osf.io/rbukz
Related research article	A subset of the images used in the current validation study were obtained freely from the *Australian Beverage Picture Set*. For details on how to access those images please see:
	S. Onie, S. Gong, E. Manwaring, D. Grageda, K. Webb, W.S. Yuen, S.B. Most, Validation of the Australian beverage picture set: A controlled picture set for cognitive bias measurement and modification paradigms, Aust. J. Psychol. 72 (2020) 223–232. 10.1111/ajpy.12272.

Value of the Data

- Multi-session cognitive bias modification for problematic alcohol use requires a large number of alcohol related (and non-alcohol related) images to prevent excessive image repetition (and potential habituation to those images).
- For successful retraining of attention/responses to one beverage category over another, images need to depict beverages that are familiar to the local population and can be quickly categorized.
- Despite the fact that the average age of individuals seeking treatment for alcohol use disorder is 35 years [2] most validation studies of previous image datasets were conducted in University Students (young, predominantly female samples). The current validation study was conducted in community participants (with a mean age of 35.8 years, 45% male).
- The images can be used by researchers who wish to investigate cognitive biases towards alcohol or conduct multi-session cognitive bias modification protocols in Australia.
- Where required, a subset of the images can be used based on image categorization speed and accuracy, craving ratings or familiarity ratings.

1. Objective

Cognitive bias modification is an experimental intervention for alcohol use disorder in which participants' attention or behavioral responses are trained away from alcohol images and towards non-alcohol images [3–6]. Retraining sessions tend to be repeated multiple times and a large range of images are required to prevent excessive image repetition (and potential habituation to those images).

Despite the fact that the average age of individuals seeking treatment for alcohol use disorder in Australia is 35 [2] most validation studies of previous image datasets were conducted in University students (young, predominantly female samples; e.g., [1]). The current validation study was conducted in community participants (with a mean age of 35.8 years, 45% male).

2. Data Description

*AllPicturesAndRatings.xls***:** A list of .jpg images that were photographed by the authors. These were added to images from an existing data set [1]. For the validation study 27 alcoholic beverages and 26 non-alcoholic beverages were each seen in two contexts for categorization and craving trials (or one context for familiarity trials). Mean categorization accuracy in addition to familiarity and craving ratings for each image are provided from 86 participants (39 males). Data is stratified by gender (male/female) and AUDIT score (high/low, median split per gender). Males with AUDIT scores of 6 or more are included in the 'high AUDIT male' group. Females with AUDIT scores of 5 or more are included in the 'high AUDIT female' group. Note that images from the Australian Beverage Picture Set can be downloaded from the original repository (see: [1] for details). See variableDescriptions.xls for details of column headers.

AllRawData_93Participants.xls: Trial Data from 93 participants is available. See variableDescriptions.xls for details of column headers. Note that 7 participants were excluded from analyzes for not drinking alcohol at least occasionally in the last year and having an AUDIT score of 0 (their data is however included in this file).

ProcessedMeansData93Participants.xls: Processed means data from 93 participants is available. See variableDescriptions.xls for details of column headers. Note that 7 participants were excluded from all analyzes (and figures) below for having an AUDIT score of 0 (however, processed means data for these participants is available).

VariableDescriptions.xls: Provides detailed description of each of the variables in *AllPicturesAndRatings.xls, AllRawData_93Participants.xls* and *ProcessedMeansData93Participants.xls*.

ValidationStudySPSSSyntax_OSF.sps: Script used to process the data. Also available as .pdf.

ValidationData_RegressionAnalyzes.omv: Using JAMOVI [7] a series of regressions models were used to investigate whether the factors gender, AUDIT score (mean-centered) and the interaction between these two variables predicted increased categorization accuracy (analysis 1), familiarity ratings (analysis 2) or craving ratings (analysis 3) for alcohol relative to non-alcoholic beverages. Eighty-six participants were included in these analyzes.

Fig. 1 docx: Validation Study data from 86 participants shown as a function of gender and AUDIT score (median split). For males, participants with AUDIT scores of 6 or more were assigned to the high AUDIT group. For females, participants with AUDIT scores of 5 or more were assigned to the high AUDIT group. A. Proportion of alcoholic and non-alcoholic beverages that were accurately categorized. B. Participants rated how familiar they were with each beverage C. Participants rated how strong the desire was to drink each beverage. Error bars represent SEM.
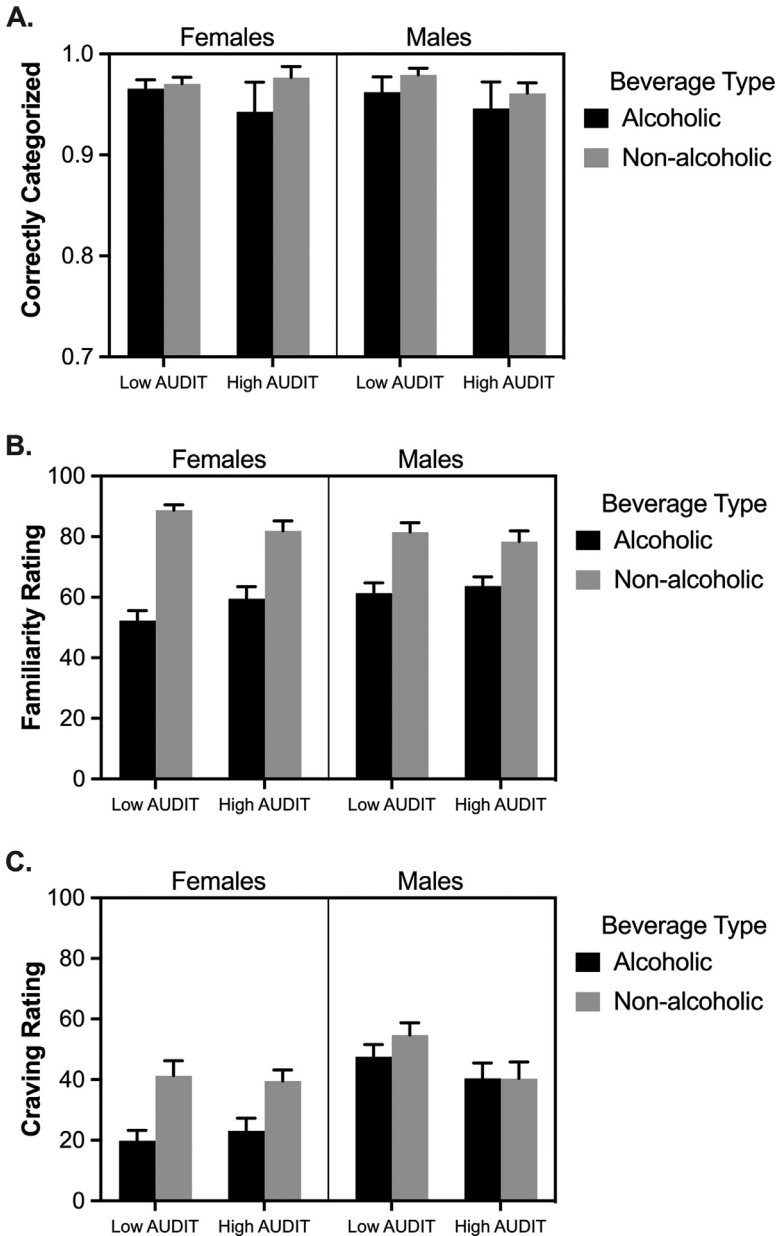
Fig. 1. Validation Study data from 86 participants shown as a function of gender and AUDIT score (median split). For males, participants with AUDIT scores of 6 or more were assigned to the high AUDIT group. Females with AUDIT scores of 5 or more were assigned to the high AUDIT group. A. Proportion of alcoholic and non-alcoholic beverages that were accurately categorized. B. Participants rated how familiar they were with each beverage C. Participants rated how strong the desire was to drink each beverage. Error bars represent SEM.

3. Experimental Design, Materials and Methods

3.1. Materials

3.1.1. Images

Eighteen alcoholic beverages and 19 non-alcoholic beverages were photographed against a plain white background in three different passive contexts – bottle only (closed), bottle open (with empty glass next to bottle), bottle opened with full glass next to bottle (see all images at https://osf.io/rbukz). In addition, nine images depicting alcohol and seven images depicting non-alcoholic beverages from the Australian Beverage Picture Set [1] were downloaded and included in the Validation Task. All images used in the Validation Task were 3024 pixels wide and 2268 pixels tall.

3.1.2. Validation Task

Categorization Trials: Participants pushed space bar to start the trial. A fixation cross was shown in the center of the screen for 300 ms followed by one of the images, presented in the middle of the screen for 200 ms. This was then replaced by a by screen with the question "What type of beverage was that? and three radio buttons with the options 'alcoholic', 'non-alcoholic' and 'image did not appear'. Participants saw all 53 images from the 'bottle alone' and 'full glass' categories (106 images total), presented in random order. The trial advanced once the participant had given their response.

Familiarity Trials: Participants saw one of the images appear in the middle of the screen. Under the image was the question "How familiar are you with this type of drink? Please move the slider to give your answer". A VAS scale 300 pixels wide with the anchors 'never seen before and 'extremely familiar' was presented under the question prompt. Participants saw all 53 images from the 'bottle alone' category, presented in random order. The trial advanced once the participant had given their response.

Craving Trials: Participants saw one of the images appear in the middle of the screen. Under the image was the question "How strong is your desire to drink this today? Please move the slider to give your answer". A VAS scale 300 pixels wide with the anchors 'no desire at all' and 'strong desire' was presented under the question prompt. Participants saw all 53 images from the 'bottle alone' and 'full glass' categories (106 images total). The trial advanced once the participant had given their response.

3.1.3. AUDIT

Participants completed the 10-item AUDIT questionnaire [8] assessing alcohol use behavior in the past year.

Demographic Questionnaire: Participants were asked to enter their age, gender, languages spoken and asked to confirm whether they were currently based in Australia.

3.1.4. Procedure

Using convenience sampling, participants were recruited from various platforms in Australia – Facebook, Gumtree, Airtasker and Prolific (restricted by location). Advertisements stated that participants would see images of beverages (including alcoholic beverages) and asked questions about them. Inclusion/exclusion criteria stated that participants should drink alcohol at least occasionally. After indicating that they were keen to participate they received a link from the researcher and were able to complete the study in their own time.

After giving informed consent participants were told that they would be asked on each trial to push spacebar when ready to begin. A picture would then be flashed very quickly. They were told that they would be asked to categorize it as either being a soft drink or a drink containing alcohol. If they didn't know then they should just guess. Only in the case where no picture appeared should they click the box 'no image appeared'. After the categorization task (approx. 10 min), participants were told that they were going to see a series of drink images and asked to indicate how familiar they were with each type of drink. They were advised to not spend too

long thinking about their answer and their first reaction was fine. After the familiarity task (approx. 5 min.), participants were told that they would now see a series of drink images and asked to indicate how much they would desire drinking each one today. They were advised to not spend too long thinking about their answer and their first reaction was fine. After completion of the craving trials (approx. 10 min.), participants completed the AUDIT and the demographic questionnaire. They then received a completion code which they emailed to the experimenter who arranged payment.

3.1.5. Data Analysis

In total 110 participants completed the study. Trials were excluded from the categorization analysis when the participant selected 'image did not appear'. Seventeen participants were excluded from all analyzes for selecting 'image did not appear' on more than 20% of categorization trials or for accurately categorizing less than 50% of images (data not included). Seven participants who scored 0 on the AUDIT (indicating that they had not consumed alcohol in the last year) were then excluded from further analyzes (raw and processed data is however available for these participants).

After participant and trial exclusions, we then identified four beverages (two alcoholic) that were correctly categorized as either alcohol or soft drink less than 90% of the time, in both contexts, and removed those from further analyzes. This left ratings for 25 alcohol beverages and 24 non-alcoholic beverages (each shown in two contexts) for the remaining analyzes.

For the remaining 86 participants, difference scores were then calculated for 1. categorization accuracy on alcohol minus soft drink trials, 2. familiarity ratings on alcohol minus soft drink trials and 3. craving ratings on alcohol minus soft drink trials. These were then used as dependent variables in a series of linear regression models with factors gender (male vs. female), AUDIT score (mean-centered) and the interaction between these variables.

To generate ratings for each picture stratified by gender and high/low AUDIT, we restricted the analysis to the 86 participants with AUDIT scores greater than 0 and calculated the median AUDIT score separately for males vs. females. We then assigned females with an AUDIT score of 5 or more as the 'high AUDIT female' group. Males with AUDIT scores of 6 or more were assigned to the 'high AUDIT male' group.

Ethics Statements

The experiment reported in this manuscript was approved by the UNSW Sydney Human Research Ethics Advisory Panel (Psychology) with file number: HREAP 3266. Informed consent was obtained from all participants. Data and privacy policies from all recruitment platforms were adhered to and all data is fully anonymised.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Images of Australian alcoholic and non-alcoholic beverages: A validation dataset (Original data) (Open Science Framework).

CRediT Author Statement

Poppy Watson: Conceptualization, Methodology, Software, Data curation, Writing – original draft; **Sandersan Onie:** Conceptualization, Methodology, Writing – review & editing.

Acknowledgments

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