# The effect of chronic disease warning statements on alcohol-related health beliefs and consumption intentions among at-risk drinkers

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## Abstract

Informing drinkers of the health risks associated with alcohol consumption via warning statements located on alcohol products can increase their capacity to make healthier choices. This study assessed whether exposing at-risk drinkers to warning statements relating to specific chronic diseases increases the extent to which alcohol is believed to be a risk factor for those diseases and influences consumption intentions. Australians drinking at levels associated with long-term risk of harm ($n$=364; 72% male) completed an online survey assessing their drinking habits, beliefs in the link between alcohol and various diseases, and drinking intentions. Respondents were then exposed to one of five statements advising of the potential risks associated with alcohol consumption (either cancer, liver damage, diabetes, mental illness, or heart disease). Beliefs and drinking intentions were reassessed. Significant increases in the extent to which alcohol was believed to be a risk factor for diabetes, heart disease, mental illness, and cancer were found. With the exception of the liver damage and heart disease statements, exposure to each statement was associated with a significant reduction in consumption intentions. Warning statements advising of the specific chronic diseases associated with alcohol consumption can produce favourable changes in drinking intentions among at-risk drinkers.

# The effect of chronic disease warning statements on alcohol-related health beliefs and consumption intentions among at-risk drinkers

## Introduction

Harmful use of alcohol is considered one of the world's leading risk factors for disability, morbidity, and mortality [1]. An estimated 5.1% of global disability-adjusted life-years and 5.9% of all deaths worldwide are attributable to alcohol [1]. Alcohol consumption is cited as a causal factor in over 200 disease and injury outcomes such as various cancers, heart disease, diabetes, liver cirrhosis, stroke, pancreatitis, hypertension, neuropsychiatric conditions, road traffic accidents, and interpersonal violence [2-4].

Despite the detrimental impact of excessive alcohol consumption on health and wellbeing, worldwide per capita consumption is increasing, and current trends suggest this increase will continue unless effective alcohol control policies and practices are implemented [1]. One strategy that has been increasingly advocated in recent years is the inclusion of warning statements on alcoholic beverages [5-7]. This strategy is based on the principle that risk appraisal is an important precursor to attitudinal and behavioural change [8].

## Alcohol Warning Labels

Consumers have a right to make informed choices about the products they purchase, and adding warning labels to alcoholic beverages is considered an important first step in facilitating enactment of this right by increasing knowledge of the risks associated with alcohol consumption [9]. According to the World Health Organization [9], alcohol warning

labels provide a “unique opportunity for governments to disseminate health messages at the point of sale and point of consumption”.

While there is an established body of work relating to the efficacy of warning statements on tobacco products [10, 11], there is little evidence that warning statements on alcohol products can influence alcohol-related intentions or behaviours. In the US, where the inclusion of a warning statement on alcoholic beverage containers has been mandatory since 1989, significant changes in alcohol consumption behaviours have not been observed [12-14]. This is despite initially favourable outcomes in terms of awareness of the label and recall of label content [12], which reads as follows:

> “GOVERNMENT WARNING: (1) According to the Surgeon General, women should not drink alcohol beverages during pregnancy because of the risk of birth defects. (2) Consumption of alcoholic beverages impairs your ability to drive a car or operate machinery, and may cause health problems” [15].

The lack of behaviour change has been attributed to a range of factors relating to the way risk information is presented on the US label, specifically the visual impact and the textual content of the warning statement [9, 16]. With respect to the former, it has been well-documented that the US warning statement lacks prominence [16, 17], which has been attributed to the statement's location on labels (i.e., on the back rather than the front), its orientation (i.e., vertical rather than horizontal), and the degree of clutter surrounding the message [18, 19].

With respect to the textual content of the statement, the US warning relates to the impact of alcohol consumption on specific behaviours (driving a car or operating machinery) or in a specific population segment (pregnant women). Only the final four words of the warning ("may cause health problems") relate to general health risk, which is expressed in a vague and equivocal manner. Information about specific adverse health effects associated with alcohol consumption is not presented. Similarly, warning statements used in other countries tend to focus on a specific behaviour (Thailand: "Warning: Drinking liquor reduces driving ability") or population segment (South Africa: "Drinking during pregnancy can be harmful to your unborn baby"; Argentina: "Not to be sold to anyone under 18 years of age"), or refer to the general harm that accrues only to those who drink 'excessively' without specifying the definition of excessive alcohol consumption (Mexico: "Excessive consumption of this product is hazardous to health") [20, 21].

Unambiguous and specific health warning statements have been proposed as a means of more effectively communicating the health risks associated with alcohol consumption and encouraging behaviour change [22]. Advising drinkers of the specific chronic and acute health risks associated with alcohol consumption has the potential to increase their awareness of why alcohol is a hazardous commodity, providing the information necessary for them to make informed choices about their drinking [22]. For example, recent experimental work examining the utility of potential warning statements suggests that statements referring to alcohol-related cancer risk may be effective in influencing alcohol-related attitudes and consumption intentions [7].

While these findings on the efficacy of cancer warning statements are promising, this work was conducted in the context of one specific health risk. A key lesson from the tobacco

control field has been the importance of ensuring that warning statements are rotated to maintain warning saliency [23]. Rotating warning statements minimises 'wear out' and overexposure to a single statement, enhancing impact [22-25]. By contrast, failing to rotate warnings lessens their impact [26]. In the context of alcohol control, rotating warning statements also has the advantage of facilitating the presentation of information on the multiple health risks associated with alcohol consumption [22]. It has therefore been recommended by the World Health Organization [9] that rotating messages be used to present information on the harms associated with alcohol use. An examination of the relative efficacy of varying alcohol health risk statements is therefore needed to identify those that would be appropriate for application in a suite of rotating statements for use on alcohol products.

It is especially important to ensure that alcohol warning statements are appropriate for drinkers who are at greater risk of alcohol-related harm. In both males and females, an increase in alcohol consumption from two to three standard drinks per day is associated with a tripling of the lifetime risk of death from alcohol-related disease [27]. This highlights the importance of ensuring that drinkers who exceed consumption recommendations are aware of their risk of long-term harm. However, research exposing adults to either alcohol promoting, alcohol warning, or control messages found that the implicit attitudes to alcohol of heavier drinkers (defined by the authors as those consuming ≥ 31 units in the past week) became less negative after viewing alcohol warnings [28]. As such, before any warning statements are broadly disseminated, the possibility of negative unintended consequences should be assessed.

**Present Study**

In Australia, the context of the present study, alcohol is an intrinsic part of national culture [29]. The average per capita consumption of around 10 litres of pure alcohol is considered high by world standards [30], and almost one in five Australian adults drinks at levels associated with long-term alcohol-related harm (i.e., an average of more than two standard drinks per day with a standard drink containing 10 g of alcohol [31]). Evidence suggests that around two-thirds of Australian drinkers may be unaware of serious long-term health consequences of alcohol consumption [32, 33]. Consistent with international recommendations [34], informing drinkers of the risks associated with alcohol consumption via warning statements on alcoholic beverages has been nominated as an important element of alcohol control efforts in Australia [35]. Accordingly, the aim of the present study was to assess whether, among adults drinking at levels associated with long-term harm, exposure to alcohol warning statements relating to specific chronic diseases (i) increases the extent to which alcohol is believed to be a risk factor for those chronic diseases and (ii) influences alcohol consumption intentions.

## Method

### Sample

Ethics clearance was obtained from a university Human Research Ethics Committee. A large online panel provider (PureProfile) was used to recruit a sample of Australians aged 18-65 years who reported drinking at levels associated with long-term risk of harm, defined as consumption of an average of more than two standard drinks per day as per National Health and Medical Research Council (NHMRC) guidelines [27]. PureProfile use multiple recruitment strategies to establish their panel of 350,000 Australians, including internet and radio advertising and referrals. Potential respondents could access the survey via a link embedded in an email sent by PureProfile or via the panel provider's website.

In total, 364 individuals were recruited. Table 1 presents the sample profile. Significantly more males and 35- to 65-year-olds were present in the sample compared to females and 18- to 34-year-olds. This profile for at-risk drinkers is generally aligned with the gender and age distribution of the comparable sample obtained in the National Health Survey (NHS) conducted by the Australian Bureau of Statistics [31] (males: 72% in the present sample cf. 73% in the NHS; 18-34 year olds: 29% in the present study cf. 33% in the NHS).

*Insert Table 1 about here*

**Procedure**

Respondents completed an online survey that had multiple stages. The first stage assessed respondents' alcohol-related behaviours, beliefs in the health risks associated with alcohol, and future alcohol consumption intentions. Alcohol-related behaviours were assessed as per the items used in national alcohol intake surveys [36, 37]. Specifically, respondents were asked about the frequency with which they consumed alcohol in the previous 12 months (*In the last 12 months, how often did you have an alcoholic drink of any kind*? Response options: 1 = less often than once a month to 7 = every day) and the number of standard drinks consumed on a usual drinking occasion (*On a day that you have an alcoholic drink, how many standard drinks do you usually have?* Response options: 1 = half a drink to 11 = 20 or more drinks).

Risk beliefs were assessed by asking respondents to indicate the extent to which they believed alcohol is a risk factor for each of the following conditions: cancer, diabetes, liver damage, mental illness, and heart disease (5-point scale: (1) *not at all* - (5) *to a very great extent*; developed by the authors). Alcohol consumption intentions were assessed by asking

respondents to report (i) the extent to which they believed they should reduce the amount of alcohol they consume (5-point scale: (1) *not at all* - (5) *to a very great extent*; adapted from [38]), (ii) the extent to which they expected that they will actually reduce the amount of alcohol they consume (5-point scale: (1) *not at all* - (5) *to a very great extent*; adapted from [38]), and (iii) their intention to consume five or more drinks in a single sitting within the following two weeks (5-point scale: (1) *definitely intend not to* - (5) *definitely intend to*; adapted from [39]). The 'intention to consume five or more drinks in a single sitting' outcome variable was reverse-scored and a grand mean 'composite' risk belief score comprising all three outcomes was created (as per *blinded for review*).

The second stage of the survey comprised an online simulation that was designed to replicate the situation in which warning statements are delivered in multiple contexts. The simulation was programmed to randomly allocate respondents to one of five warning statement conditions: (1) *Warning: Alcohol increases your risk of cancer;* (2) *Warning: Alcohol increases your risk of diabetes;* (3) *Warning: Alcohol increases your risk of liver damage;* (4) *Warning: Alcohol increases your risk of mental illness;* or (5) *Warning: Alcohol increases your risk of heart disease*. As recommended, the signal word *Warning* was used at the beginning of each statement to attract attention [9].

Upon entering the simulation, respondents were randomly presented with one of two scenes: a home living room or a doctor's surgery. In each of these locations, respondents were able to click on various designated 'hot spots'. Some of these hot spots were filler items (a piano that played music when clicked upon, a picture on a wall, a television, a diary, a medical receptionist avatar, medical supplies) while others (an alcoholic beverage product, an advertisement in a newspaper, a doctor avatar, a child avatar) produced the warning statement

to which the respondent had been randomly allocated. Once all hot spots generating the warning statement in the first scene had been viewed, respondents could navigate to the next scene – a roadside bus stop with a waiting bus. Here they were exposed to their allocated statement via a billboard on the bus stop. In this scene, clicking on the hot spot located on the bus door redirected respondents to their third and final scene which was either the living room or doctor's surgery (i.e., the opposite scene to their commencing location). In total, respondents were exposed to their allocated statement five times from five different sources in three different scenes (for additional information on the simulation see *blinded for review*).

Upon completion of the simulation, respondents commenced the third stage of the survey that involved reassessing their beliefs in the link between alcohol and each of the chronic diseases under investigation and their alcohol consumption intentions. Finally, additional demographic questions relating to marital status, country of birth, and education level were posed.

**Analysis**

Paired samples *t*-tests were used to examine pre- to post-exposure changes in respondents' (i) beliefs in the link between alcohol and various chronic diseases and (ii) future alcohol consumption intentions. To assess the robustness of these findings, a series of repeated measures ANCOVAs stratifying by statement and controlling for gender, age, tertiary education, and SES was conducted. Analyses were also conducted to determine if these sociodemographic variables moderated the effects of each warning statement on the dependent variables under investigation. Next, independent samples *t*-tests were conducted on risk belief scores to assess whether the observed effects of exposure were generalised across all statements rather than being specific to the particular message to which respondents

were exposed. All analyses were conducted in SPSS. Bonferroni-corrected *p*-values were used to control for the family-wise error rate.

## Results

### Beliefs

Pre- to post-exposure changes in respondents' belief in the extent to which alcohol is a risk factor for the various chronic diseases under investigation are presented in Table 2. Results are stratified by exposure condition (i.e., whether respondents were exposed to a statement presenting information on the specific chronic disease listed in the first column or whether they were exposed to one of the other chronic disease statements).

Baseline and post-exposure scores were lowest for respondents' belief in alcohol as a risk for cancer and highest for respondents' belief in alcohol as a risk factor for liver damage. For all conditions except liver damage, the extent to which alcohol was believed to be a risk factor for a specific chronic disease was significantly greater after respondents were exposed to a statement presenting information advising of such risk. The effect sizes associated with these pre- to post-exposure changes were large, especially for the statement *Alcohol increases your risk of diabetes*, followed by *Alcohol increases your risk of mental illness* and *Alcohol increases your risk of heart disease.*

The follow-up ANCOVA analyses replicated these results, with pairwise comparisons of marginal means (adjusted using the Bonferroni correction) revealing a significant increase in the extent to which respondents believed in alcohol as a risk factor for diabetes, cancer, heart

disease, and mental illness after exposure to statements advising of these risks (all $p<.001$). A significant difference was not observed for liver damage ($p=.088$). The sociodemographic variables of gender, age, tertiary education, and SES did not moderate the effects of the warning statements on beliefs at the Bonferroni-adjusted significance level of $p = .0125$.

To assess whether advising drinkers of one alcohol-related disease influences beliefs about other risks associated with alcohol consumption, pre- to post-exposure changes in risk belief scores for diseases other than the specific disease that was the subject of the statement to which each respondent was exposed were examined. Significant increases were observed in the extent to which respondents believed that alcohol increases the risk of each of the examined diseases, regardless of the actual disease-risk message to which respondents were exposed. However, the effect sizes associated with pre- to post-exposure change were much larger for diseases that were the focus of the specific messages to which respondents were exposed (see Table 2).

*Insert Table 2 about here*

**Drinking Intentions**

Table 3 presents alcohol intention outcomes pre- and post-exposure by statement. Overall intentions to reduce consumption changed favourably pre- to post-exposure for all statements except *Alcohol increases your risk of liver damage* (see Table 3). Similarly, pairwise comparisons of marginal means (adjusted using the Bonferroni correction) in the follow-up ANCOVA analyses revealed a significant decrease in alcohol consumption intentions among those exposed to the cancer, diabetes, and mental illness statements, but not the heart disease or liver damage statements. Exposure to the *Alcohol increases your risk of diabetes* statement

was associated with the greatest effect size. The sociodemographic variables of gender, age, tertiary education, and SES did not moderate the effects of the warning statements on alcohol consumption intentions at the Bonferroni-adjusted significance level of $p = .0125$.

*Insert Table 3 about here*

## Discussion

Despite the harms associated with alcohol consumption, worldwide per capita consumption is increasing [1]. To assist in the process of raising awareness of potential harms, the present study investigated the extent to which exposure to warning statements relating to various chronic disease risks can change alcohol-related beliefs and consumption intentions among those drinking at levels associated with long-term harm.

### Beliefs

Four of the five tested statements produced changes in alcohol-risk beliefs, suggesting they may be a practical means of educating the public about the harms associated with alcohol consumption. These statements referred to diabetes, mental illness, heart disease, and cancer. Exposure to the statement relating to liver damage did not result in any significant belief change, which is likely to be largely attributable to the high baseline level for this chronic disease.

Change in the extent to which respondents believed alcohol to be a risk factor for a specific chronic disease was largest when respondents were exposed to the statement highlighting the alcohol-related harm associated with that specific disease. However, belief in the extent to

which alcohol is a risk factor for other chronic diseases significantly increased regardless of the statement to which respondents were exposed, albeit to a smaller degree. This suggests that health warnings on alcohol products may cause a generalised effect whereby drinkers become more likely to view alcohol as harmful overall. This outcome is consistent with a cognitive processing mechanism known as the halo effect, which occurs when product labelling that highlights one positive product characteristic results in consumers assuming the product has other positive characteristics [40]. Findings from the present study suggest the halo effect may operate in the reverse direction and that warning labels relating to one specific chronic disease may be useful in making drinkers receptive to the general idea that alcohol is an unhealthy product. This is a very positive and unexpected outcome of alcohol warning statements that may assist in making them more attractive to policy makers.

**Intentions**

Exposure to the statement *Alcohol increases your risk of diabetes* resulted in the greatest change to consumption intentions. Consumption intentions also changed favourably among those exposed to the statements *Alcohol increases your risk of mental illness* and *Alcohol increases your risk of cancer*. The statements *Alcohol increases your risk of liver damage* and *Alcohol increases your risk of heart disease* did not produce any significant changes in consumption intentions, likely owing to the higher baseline knowledge of the relationship between alcohol consumption and these conditions.

The stronger performance of the diabetes, mental illness, and cancer statements relative to the liver damage and heart disease statements can be partially attributed to their relative novelty, as reflected in their lower baseline belief levels. This is consistent with previous work indicating that statements presenting novel information are likely to be more effective [13,

15, 41, 42]. In Australia, public education campaigns have tended to highlight the shorter-term risks associated with alcohol, such as the consequences of driving while inebriated or drinking while pregnant [33]. By contrast, information relating to the longer-term health risks associated with alcohol has not been widely disseminated. As such, compared to their awareness of the highly publicised short-term alcohol-related risks, many Australians are less aware of the relationship between alcohol consumption and a variety of long-term health effects [33]. In the current study, presenting at-risk drinkers with novel information may have facilitated learning of the long-term risks associated with alcohol consumption, thereby favourably influencing behavioural intentions. Presenting information about the risk of liver damage and heart disease associated with alcohol use may be repeating information that people already know, thereby impeding attitude change and producing limited effects on behavioural intentions [43].

**Limitations**

The primary limitation of the present study was the lack of a control group comprising participants who viewed no warning messages. As such, it was not possible to determine whether significant effects were caused by the warning statements or by the testing procedure. A second limitation concerns the use of a web panel provider to recruit respondents. As a result of the methods of respondent recruitment, the response rate cannot be calculated. While the demographic characteristics of the present sample are similar to a previous national sample of those drinking at levels associated with long-term harm [31], population representativeness cannot be assumed.

A third limitation concerns the translation of intentions to behaviour. Although the results of the present study support previous research finding that warning statements have the potential

to both raise awareness of alcohol-related health harms and change drinking intentions [6, 7, 44], the extent to which changes in intentions resulting from message exposure translate to actual behaviour change is unclear. Longitudinal work examining behaviour change is important to assess whether changes in intentions stimulated by exposure to warning statements in experimental conditions translate to real-life drinking scenarios. A fourth limitation concerns the use of a single item to measure a main dependent variable of respondents' future drinking intentions, which prevents assessment of reliability. However, single items are regularly used to assess alcohol consumption intentions (e.g., [7, 45, 46]).

Finally, given high levels of cultural acceptance of alcohol in Australia and many other countries [47, 48] and the pervasive and well-resourced advertising efforts of the alcohol industry [49], the inclusion of warning statements on alcoholic beverages is unlikely to result in substantial behavioural change when used in isolation. Rather, alcohol product labelling should be considered a component of a comprehensive public health strategy that provides information and educates drinkers on the risks associated with alcohol consumption to prevent and reduce alcohol-related harm [9]. The tested statements should therefore also be considered for inclusion in other approaches to information dissemination such as mass media campaigns and education programs.

**Future Directions**

Evidence from the tobacco control field suggests that the impact of warning labels declines over time [50]. To increase their effectiveness, tobacco warning labels are rotated and larger warnings accompanied by graphic imagery have been introduced [51]. For example, in Canada the presence of large, vivid pictorial warnings on cigarette packages has resulted in measures of salience and impact remaining high four years after implementation [51]. In

identifying messages that may be the most effective at increasing awareness and influencing behavioural intentions, the present study represents important exploratory work that can form the basis of future research examining the effectiveness and longevity of these messages when accompanied by graphic imagery, as has been done with tobacco. Future research may also seek to explain the mechanisms determining the effectiveness of certain statements over others.

**Conclusion**

There have been calls for the implementation of rotating warning statements on alcohol products to attract and retain the attention of drinkers and minimise the wear-out effect of repeated exposure to a single warning statement [5, 6, 43]. The results from the present study may assist in the development of an appropriate suite of warning statements that have the potential to modify at-risk drinkers' beliefs and consumption intentions. Specifically, results suggest that warning statements focusing on specific chronic health conditions associated with alcohol consumption may encourage changes in drinking intentions among those drinking at levels associated with long-term harm. Of the statements tested, *Warning: Alcohol increases your risk of diabetes* may be the most effective in Australia, followed by *Warning: Alcohol increases your risk of mental illness* and *Warning: Alcohol increases your risk of cancer*. These statements could potentially be disseminated via a comprehensive public education campaign that includes product warning statements. Given evidence that voluntary industry regulation to improve the information given to consumers does not result in any significant change to information provision [52], government-led and mandated product labelling regulation will be crucial to changing labelling practices and informing consumers of the substantial risks associated with alcohol consumption, thereby facilitating potential behaviour change.

**Conflicts of interest**: None to declare.

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**Table I.** *Sample profile* (*n* = 364)

| | *n* | (%) |
|---|---|---|
| Gender | | |
| Male | 263 | 72 |
| Female | 101 | 28 |
| Age | | |
| 18 – 34 years | 106 | 29 |
| 35 – 65 years | 258 | 71 |
| Tertiary Education (%) | | |
| Yes | 120 | 33 |
| No | 244 | 67 |
| Socioeconomic Status (SES)^ (%) | | |
| Low | 121 | 33 |
| Mid | 147 | 41 |
| High | 95 | 26 |
| Mean standard drinks per week | 34.07 (*SD* = 22.83) | |

^SES as per the Australian Bureau of Statistics' Socio-Economic Indexes for Areas (SEIFA) classification [53].

**Table II.** *Belief in the extent to which alcohol is a risk factor for various chronic diseases pre and post warning statement exposure*

| | | Awareness of chronic disease risk | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Outcomes for respondents exposed to statement | | | | Outcomes for respondents not exposed to statement | | | | |
| Message focus | | Pre<br>Mean (*SD*) | Post<br>Mean (*SD*) | Δ | Significance<br>(pre to post change) | Pre<br>Mean (*SD*) | Post<br>Mean (*SD*) | Δ | Significance<br>(pre to post change) | Significance of Δ<br>(exposed vs not exposed) |
| Diabetes | | 3.29 (1.21) | 4.35 (0.70) | 1.06 | $p < .001$, $d = 1.01$ | 3.37 (1.13) | 3.53 (1.12) | 0.16 | $p < .001$, $d = 0.21$ | $p < .001$, $d = -0.94$ |
| Mental illness | | 3.15 (1.20) | 4.07 (0.83) | 0.92 | $p < .001$, $d = 0.97$ | 3.24 (1.27) | 3.42 (1.21) | 0.18 | $p < .001$, $d = 0.23$ | $p < .001$, $d = -0.83$ |
| Heart disease | | 3.51 (1.14) | 4.34 (0.87) | 0.83 | $p < .001$, $d = 0.95$ | 3.49 (1.10) | 3.66 (1.08) | 0.16 | $p < .001$, $d = 0.23$ | $p < .001$, $d = -0.81$ |
| Cancer | | 2.78 (1.19) | 3.58 (1.30) | 0.80 | $p < .001$, $d = 0.71$ | 3.12 (1.23) | 3.37 (1.18) | 0.25 | $p < .001$, $d = 0.32$ | $p < .001$, $d = -0.58$ |
| Liver damage | | 4.35 (0.97) | 4.50 (0.89) | 0.15 | $p = .083$, $d = 0.20$ | 4.20 (0.98) | 4.28 (0.90) | 0.08 | $p = .020$, $d = 0.14$ | $p = .431$, $d = -0.11$ |

*Note*. Scores reflect ratings made on a 5-point scale: (1) *not at all* - (5) *to a very great extent*

**Table III.** *Alcohol consumption intentions outcomes pre- and post-exposure by statement*

| | Outcomes for respondents exposed to message | | | | |
|---|---|---|---|---|---|
| Statement(s) | Pre-exposure Mean[a] (*SD*) | Post-exposure Mean[a] (*SD*) | Δ | Significance | Adjusted significance |
| Diabetes | 2.50 (1.00) | 2.86 (0.98) | 0.36 | $p < .001$, $d = 0.53$ | $p = < .001$, $\eta^2_{partial} = .225$ |
| Mental illness | 2.83 (0.77) | 3.03 (0.82) | 0.20 | $p = .008$, $d = 0.36$ | $p = .007$, $\eta^2_{partial} = .122$ |
| Cancer | 2.65 (0.93) | 2.89 (1.05) | 0.24 | $p = .002$, $d = 0.35$ | $p = .003$, $\eta^2_{partial} = .110$ |
| Heart disease | 2.71 (0.88) | 2.90 (0.94) | 0.19 | $p = .033$, $d = 0.25$ | $p = .050$, $\eta^2_{partial} = .053$ |
| Liver damage | 2.95 (0.92) | 3.01 (0.95) | 0.06 | $p = .422$, $d = 0.09$ | $p = .430$, $\eta^2_{partial} = .008$ |

[a]Composite mean of all three outcome items with items measured on a scale of 1 (*not at all/definitely intend to*) to 5 (*to a very great extent/definitely intend not to*).