**Type D Personality, Alcohol Consumption and the Theory of Planned Behaviour**

201437720

BA (Hons) Psychology

C8426: Single Honours Psychology Dissertation

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Word count: 6981

Ethical reflection: 488

**Abstract**

Although research suggests individuals with Type D personality are more likely to engage in certain unhealthy behaviours, research concerning the relationship between Type D and alcohol consumption has been mixed. In addition, there is a lack of integration of social-cognition models into our understanding of Type D personalities in the literature. Therefore, the current study investigated Type D personality in relation to alcohol consumption and social-cognition models, specifically the Theory of Planned Behaviour. The sample consisted of 286 participants (95 males, 191 females) with a mean age of 28.98 (SD=.66). Independent *t*-tests found no significant differences in alcohol consumption between the Type D and non-Type D groups. Significant differences were found in levels of perceived behavioural control. Correlational analysis revealed relationships between dimensional Type D and intention, perceived behavioural control, severity and susceptibility. Hierarchical regressions revealed that individually negative affectivity and social inhibition account for a combined 11.3% of the variance in perceived behavioural control, while social inhibition predicted 4.1% of the variance in intention. Results are discussed within the context of previous literature, and considerations, including alcohol measurement, the intention-behaviour link and limited utility of Type D as a construct, are discussed. Future research is also discussed in view of rectifying limitations present in the current study.

Alcohol consumption has been identified as the third greatest risk factor for disease and disability worldwide (World Health Organisation, 2011). According to the World Health Report (World Health Organisation, 2011), excessive alcohol usage is linked to over 200 medical conditions. Medical conditions can be linked to both overall volume of alcohol and patterns of alcohol consumption (Rehm et al., 2010). Volume of alcohol consumption has been typically operationalised as the total absolute alcohol consumed over a time period, and typically quantified in terms of the number of units consumed over a specified time period. Drinking pattern, on the other hand, has been operationalised as the presence of heavy drinking occasions. Alongside the long-term medical complications, there are also short-term risks associated with average volume of alcohol consumption including physical injuries, aggression, increased risk of sexually transmitted diseases and alcohol poisoning (Greenfield, 1998; Sanap & Chapman, 2003; Smith, Branas, & Miller, 1999). Furthermore, problematic patterns of drinking are particularly prevalent among adolescents (Hingson, Zha, & Weitzman, 2009), with around a fifth of students reporting falling behind in coursework due to drinking (Perkins, 2002). In addition, rates of serious drinking-related consequences in students aged 21-24 have increased rather than decreased over the years (Hingson et al., 2009), emphasising the need for effective interventions to be developed to reduce drinking among this particular demographic and the wider population. The identification of different outcomes based on the measure used (e.g. total volume, drinking pattern) also suggests that separate dimensions of alcohol use should be also considered within wider research.

An important factor which can affect an individual’s likelihood to drink excessively and consequently experience negative health outcomes associated with drinking is personality (e.g. Malouff, Thorsteinsson, Rooke, & Schutte, 2007). The Five Factor model of personality (John, Naumann, & Soto, 2008) considers personality in terms of five overarching personality traits. These include extraversion, which manifests in outgoing individuals who enjoy the company of others; conscientiousness, which is characterised by organisation, self-discipline, purposeful action and a drive to achieve; neuroticism, which is the stable tendency to experience negative emotions and low emotional stability; openness to experience, which is characterised by curiosity, creativity and broadmindedness; and agreeableness, which manifests in characteristics such as kindness, cooperation and sympathy. Early research investigating the relationship between the Five Factor model and alcohol found that high levels of extroversion and sociability and low levels of conscientiousness were predictors of alcohol use (Cook, Young, Taylor, & Bedford, 1998; Howse & Ghodse, 1997; Tucker et al., 1995). More recent research has found that low conscientiousness, low agreeableness and high neuroticism also significantly predicted alcohol use (Malouff, Thorsteinsson, Rooke, & Schutte, 2007; Kotov, Gamez, Schmidt, & Watson, 2010; Bogg & Roberts, 2004; Cheng & Furnham, 2013). This research suggests that identifying individual differences which make a person more likely to engage in problematic patterns of drinking may be key to developing effective targeted interventions. The health process model (Adler & Matthews, 1994) offers a conceptual framework to understand how individual differences such as personality can interact with social environmental factors and health-related behaviours such as alcohol consumption. Research has found a positive relationship between conscientiousness-related traits and social environmental factors, such as marriage and work (Roberts, Caspi, & Moffitt, 2003), which have in turn been linked to positive health outcomes (Cramer, 1993; Kelly, & Conley, 1987; Judge, Higgins, Thoresen, & Barrick, 1999). This suggests that personality factors can interact with social environmental factors which can in turn influence health behaviour.

A further dimension of personality which has been the subject of recent research within the field of health psychology is Type D personality (Bruce, Curren, & Williams, 2012). Type D personality is the synergistic effect of negative affectivity and social inhibition (Denollet et al., 1996), whereby the effect of the two factors is greater than the sum of the individual effects. Negative affect (NA) refers to a stable tendency to experience negative emotions, such as irritability, anger or sadness across different situations. Social inhibition (SI) refers to a tendency to inhibit the expression of emotions and behaviours in social contexts due to possible rejection or disapproval. Estimates of Type D prevalence within the general population in Western Europe range from 21-32% (Beutel, Wiltink, & Till, 2012; Denollet, 2005; Svansdottir et al., 2012; Grande, Jordan, & Kummel, 2004). Type D is assessed using the Type D Scale-14 (DS14; Denollet, Schiffer, & Spek, 2010), consisting of 2 subscales each containing 10 statements to assess NA and SI. Questionnaire items are scored on a 5-point Likert scale and individuals who score a minimum of 10 on each subscale can be categorised as Type D. Type D has also been examined as a dimensional construct using the subscales of negative affectivity and social inhibition (with a range of 0-28), which has allowed researchers to control for the main effects of NA and SI in regression analyses to determine if the synergistic effect of the two that predicts outcome (Ferguson et al., 2009), over and above the effects of NA and SI independently.

Initial research investigating how Type D personality relates to health suggested that Type D individuals have a poorer clinical prognosis than non-Type D individuals (Denollet, Pedersen, Vrints, & Conraads, 2006), particularly among cardiac patients (Schiffer, Denollet, Widdershoven, Hendriks, & Smith, 2007). Much of the early research concerning Type D examined health outcomes within patients suffering from cardiovascular diseases found that Type D predicted prognosis even after controlling for other markers of disease severity (Denollet et al., 1996; Denollet, Vaes, & Brutsaert, 2000; Pedersen et al., 2004; Martens, Mols, Burg, & Denollet, 2009). Following on from this, Type D individuals exhibited higher levels of cardiac output in response to an experimental stressor (Williams, O’Carroll & O’Connor, 2009). Additionally, they reported lower perceived health status compared to non-Type Ds (van den Broek, Smolderen, Pedersen, & Denollet, 2010; Schiffer, Pedersen, Widdershoven, & Denollet, 2008; Pelle, Schiffer, Smith, Widdershoven, & Denollet, 2009). Furthermore, healthcare professionals with Type D personalities were found to have higher levels of occupational stress (Oginska-Bulik, 2006) and absence from work (Hanebuth, Meinel & Fischer, 2006). Type D personality has also been linked to a range of health behaviours, including Type D individuals being less likely to seek appropriate medical care (Thomas, de Jong, Kooijman, & Cremers, 2006; Williams et al., 2008). In addition, Type D individuals were more likely to be a smoker (Pedersen et al., 2004), less likely to spend time outdoors and eat healthily than non-Type Ds (Williams et al., 2008). Overall, it is clear that Type D individuals are susceptible to a range of negative health outcomes and are more likely to engage in negative health behaviours than non-Type D.

In terms of how Type D relates to alcohol use, there is less consensus within the literature. Type D has been related to maladaptive patterns of drinking include excessive alcohol consumption and binge drinking among college students (Bhochhibhoya, Collado, Branscum, & Sharma, 2015). Additionally, research has found that Type D individuals have higher rates of alcohol dependence than non-Type D individuals (Bruce, Curren, & Williams, 2012; Michal, Wilktin, Grande, Beutel, & Brähler, 2011). Bruce et al. (2012) found interesting differences in drinking motives when looking closely at NA and SI, with individuals higher in NA often using alcohol as a coping mechanism, while individuals higher in SI tended to use alcohol to adhere to social norms and fit in during social situations. Further research investigating addictive behaviours among coronary heart disease patients found higher levels of alcohol consumption within the Type D group (Ginting, van de Van, Becker, & Naring, 2016). One study found that individuals with Type D personality exhibited higher levels of desire for alcohol during an experimental stressor (Williams, Bruce, & Knapton, 2018), suggesting Type D individuals may consume higher levels of alcohol as a mechanism of coping with stress. This is in line with the finding that Type D individuals are more likely to adopt inadequate coping strategies such as avoidance (Martin et al., 2011), with these inadequate coping strategies possibly including drinking alcohol to reduce stress. These findings may also be indirectly explained through previous research suggesting that Type D personality is linked to difficulties in regulating emotions (Messerli-Bürgy et al., 2012), which in turn has been related to increased desire for alcohol (Petit et al., 2015).

In contrast, other research has found that Type D individuals generally drink less than non-Type D individuals (Mommersteeg, Kupper, & Denollet, 2010). One study found reduced alcohol consumption among Type D women, but no significant effect within Type D men (Hausteiner, Klupsch, Emeny, Baumert, & Ladwig, 2010). In addition, research has found a greater prevalence of Type D among alcohol abstainers (both never and former drinkers) than both moderate and heavy drinkers (van Bon-Martens et al., 2012). Furthermore, given that social inhibition is negatively correlated with the personality trait extraversion (De Fruyt & Denollet, 2002), which is related to higher levels of alcohol consumption (e.g. Cook et al., 1998), it might be expected that Type D individuals who are socially inhibited would consume less alcohol than non-Type D individuals who are more extraverted. Considering those who abstain from alcohol are more at risk from adverse health outcomes than moderate drinkers (Friesema et al., 2007), the findings from van Bon-Martens and colleagues suggest that having Type D is a risk factor for adverse health outcomes that arise from alcohol abstention.

The conflicting findings within the literature may be explained by the lack of standardisation employed in research in that different studies have conceptualised and measured alcohol consumption in different ways. For example, alcohol dependence has been measured using the Patient Health Questionnaire in Michal et al. (2011) and the Severity of Alcohol Dependence – Community Sample (SADQ-C; Stockwell, Sitharan, McGrath, & Lang, 1994) in the study by Williams et al. (2018). Alternatively, alcohol consumption has been conceptualised as consuming one or more alcoholic drink per week by Mommersteeg et al. (2010) and as the quantity of alcoholic drinks within a seven-day period by Ginting et al. (2016). On the other hand, van Bon-Martens et al. (2012) conceptualised unsafe alcohol use as consuming more than 21 alcoholic drinks per week for men and more than 14 alcoholic drinks per week for women. Similarly, Bhochhibhoya et al. (2015) measured alcohol consumption by recording the number of drinks participants consume on average over the past 30 days and measured binge drinking by noting the number of times in the last 30 days male participants had consumed more than five drinks (male) or four drinks (female) on the same occasion. Therefore, the vast variety in measurements used to obtain drinking data may account for some for the inconsistency in research findings. Additionally, many of the studies mentioned used brief measures of alcohol consumption, which were collated as part of larger studies which investigated various health behaviours and outcomes, and therefore lacked a sole focus on drinking behaviours.

The current study wanted to explore different measures of alcohol consumption as part of a study which solely looked at alcohol use as a health behaviour in relation to Type D. The researchers therefore employed the Timeline Follow-back Questionnaire (TLFB) to measure three separate dimensions of alcohol consumption; overall volume of alcohol, pattern of drinking and number of days on which alcohol was consumed. In the present study, overall volume of alcohol will be measured as the number of units consumed over a seven-day period. Drinking pattern, in the present study, has been conceptualised as the number of units consumed by an individual on their heaviest drinking day. A third measure of alcohol which will be considered is the regularity of alcohol consumption, conceptualised as the number of days in which an individual consumed any amount of alcohol, over a seven-day period. The fact that the current study employs three different measures of alcohol usage should provide a more comprehensive assessment of participants’ drinking behaviours and aims to resolve some of the previous limitations involved in collecting alcohol data.

Although much research has been conducted to investigate the relationships

between Type D and certain health behaviours, many of the reasons why Type D individuals engage in unhealthy behaviours are largely unknown. A model which has been particularly useful in understanding behaviours in other areas of health psychology is the Theory of Planned Behaviour (TPB; Azjen, 1991; Azjen & Fishbein, 1980, 2005), which explained the link between attitudes and behaviour through intentions being the immediate antecedent of behaviour and intentions being determined by attitudes and subjective norms. Attitudes refers to an individual’s beliefs about the outcomes of performing a particular behaviour, while subjective norms refer to perceptions about how other people view them for performing that behaviour (Casper, 2007). The TPB model considers perceived behavioural control (PBC) as an additional cognition which determines behaviour alongside attitudes and subjective norms (Armitage & Conner, 2001). PBC is the amount of control an individual feels they have over a certain behaviour (controllability) and the level of difficulty or ease in performing that behaviour (self-efficacy). According to TPB, more favourable attitudes and perceived subjective norms, together with a greater level of controllability and self-efficacy, lead to stronger intentions to perform the behaviour, which will predict actual behaviour.

Although no studies have looked at the role of any of the social cognitions models in relation to the relationship between Type D and health behaviours, including TPB, it has been shown to predict a range of health and social behaviours, including condom use (Albarracin et al.,, 2005), safe sex, binge drinking and drink-driving (Armitage, Norman & Conner, 2002) and adherence to medication safety (Lapkin, Levett-Jones, & Gilligan, 2015). A meta-analysis (Armitage & Conner, 2001) found that TPB variables accounted for 39% of the variance in behavioural intention. A second meta-analysis concluded that the model could identify important targets to develop interventions (McEachan, Conner, Taylor, & Lawton, 2011), which can in turn influence health behaviours. One study investigating the role of TPB in relation to personality and other areas of health found that attitude and PBC mediated the relationship between conscientiousness and physical activity intention (Davies, Mummery, & Steele, 2010). Furthermore, Conner and Abraham’s (2001) study found that personality and cognition variables mediated the effect of past behaviour on intention, demonstrating that personality can interact with TPB variables which can in turn influence health behaviours.

Studies which have looked at TPB in relation to alcohol consumption found that an average of 41% of the variance in intention to drink was accounted for by attitude, subjective norm and PBC (McMillan & Conner, 2010; Armitage, Armitage, Conner, Loach, & Willets, 1999; Conner & Norman, 1996; Knibbe, Oostveen, & van de Goor, 1991; Marcoux & Shope, 1997; Norman, Bennett, & Lewis, 1998; O’Callaghan, Chant, Callan, & Baglioni, 1997; Rise & Wilhelmsen, 1998; Schlegel, D’Avernas, Zanna, Decourville, & Manske, 1992; Wall, Hinson, & McKee, 1998). Furthermore, research conducted in relation to alcohol use and safe sex found that both attitudes and PBC interacted with alcohol use to affect condom use (Cue Davis et al., 2016; Conner, Graham, & Moore, 1999). Additional research looking at alcohol consumption among pregnant women found that TPB components were able to explain 57% to 77% of the variance in drinking behaviour (Duncan, Forbes-McKay, & Henderson, 2012). These findings demonstrate the utility of TPB in predicting health behaviours and the need to understand the underlying mechanisms in order to develop better targeted interventions for at risk individuals.

One reason for the present research investigating TPB is that research has suggested mediating effects of self-efficacy on links between Type D and other areas of health (Wiencierz & Williams, 2016; Molloy et al., 2012; Wu, Song, & Moser, 2015). Self-efficacy can be defined as an individual’s belief in their ability to succeed in certain situations or tasks and is an element of PBC along with controllability. A study which looked at physical exercise found that low levels of self-efficacy helped to explain why Type D individuals engage in more unhealthy behaviours (Wiencierz & Williams, 2016). Two studies found useful interactions of self-efficacy in the relationship between Type D and medication adherence (Molloy et al., 2012; Wu et al., 2015). One study found that only the NA component of Type D predicted medication adherence, with low levels of self-efficacy mediating this relationship (Molloy et al., 2012). The other study found that Type D heart failure patients had lower levels of self-efficacy and that self-efficacy had mediating effects on the relationship between Type D and medication adherence (Wu et al., 2015). Therefore, previous research suggests some mediating effects of self-efficacy on Type D and other health behaviours, and thus the PBC component of TPB might be related to Type D.

The first aim of the study is to investigate the differences in alcohol consumption between Type D and non-Type D individuals. The second aim of the study is to investigate the correlations between Type D as a continuous construct, the three dimensions of alcohol consumption and TPB components. The third aim is to investigate whether TPB will predict alcohol consumption and whether Type D will predict TPB. Lastly, the study aims to investigate if there are any mediating effects of TPB on the relationship between Type D and alcohol consumption.

**Method**

**Participants and Procedure**

Participants were recruited through the Strathclyde Psychology participation pool, and via family and friends of the researchers. The final sample consisted of 286 participants (94 males, 191 females). The mean age was 28.98 (SD=.66), with an age range of 18-62. G\* power was used to calculate the appropriate sample size, setting alpha at 0.05, and power at 0.80, and to detect a medium effect size using a two-tailed t-test, giving a minimum of 176 participants. Ethical approval was obtained from the University School of Ethics Committee. Exclusion criteria for participation was being a non-drinker. Participants provided informed consent and completed each of the measures online via Qualtrics. Participants were debriefed and thanked for their participation.

**Design**

The study used an independent samples design and a correlational design. The independent variable was membership of the Type D/non-Type D group and the dependent variables were overall volume of alcohol, drinking pattern and number of days drinking. Type D personality measures and TPB measures were assessed using interval level data, while overall volume of alcohol, drinking pattern and number of drinking days were assessed using ratio level data. The co-variables were Type D as a continuous variable, TPB variables, overall volume of alcohol, drinking pattern and number of drinking days.

**Measures**

**Type D Personality**

The Type D Scale-14 (DS14) was used to assess NA, SI, and Type D personality. The scale included 10 statements overall, which included 5 statements measuring negative affectivity, such as “I often feel irritated”, and 5 statements measuring social inhibition, such as “I often feel inhibited in social situations”. Questionnaire items were scored on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). Participants who scored a minimum of 10 points on each NA and SI scales were categorised as Type D. The NA and SI scales were also scored as continuous variables (range = 0-28) to assess these personality traits individually. Cronbach’s α was high for each NA (.89) and SI (.79).

**Theory of Planned Behaviour**

The study used an adapted version of the Theory of Planned Behaviour scale (Connor & Abraham, 2001) which included 8 statements to measure intention (two items; e.g. “I intend to look after my health in the next 2 weeks, strongly disagree to strongly agree), attitude (one item; “I think that looking after my health over the next 2 weeks would be a good thing”), subjective norm (one item; “Other people who are important to me think that I should look after my health over the next 2 weeks”), PBC (one item; “If I wanted to, it would be easy to look after my health over the next 2 weeks”), severity (one item; “The problems associated with me not looking after my health over the next 2 weeks would be minor”), susceptibility (one item; “I do not think I am likely to suffer problems if I do not look over my health over the next 2 weeks”) and anticipated affective reactions (one item; “I think that I would feel concerned if I do not look after my health over the next two weeks”). Questionnaire items were scored on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree).

**Timeline Follow-Back Questionnaire**

Alcohol consumption was measured using the Timeline Follow Back Questionnaire. Participants were asked to list any alcoholic drinks which had been consumed on each day over the past seven days. Researchers calculated units using the Drinkaware website. Blank responses were encoded as “0” drinks, along with “zero”, “none”, “no”, “N/A” and “00”. Where participants failed to provide information about the brand of alcohol consumed, standard percentages were calculated for spirits (37.5%), wine (13%), prosecco (12%), cider (4.5%), lager (4%), ale/stout (4%) and alcopops (4%). Where participants failed to provide sufficient information about the size of alcohol consumed, standard sizes were calculated for spirits (25ml), wine (175ml), prosecco (125ml), cider (330ml), lager (330ml), ale/stout (330ml) and alcopops (70cl). If Drinkaware did not provide the correct quantity and brand matching participants responses, closest match in alcohol brand was used, keeping the quantity the same.

**Statistical Analysis**

Using the categorical measure of Type D, participants were divided into groups based on having a Type D personality (146 participants) or non-Type D personality (140 participants). Differences in alcohol consumption between the Type D and non-Type D group were assessed using an independent samples *t*-test. A Pearson’s correlation was then conducted to examine the relationship between the continuous variable Type D, TPB variables and overall volume of alcohol, drinking pattern and number of days drinking. A hierarchical multiple regression was then conducted to determine if Type D predicted any TPB components.

**Results**

**Prevalence of Type D**

Of the 286 participants, 146 (51.0%) of participants scored at least 10 on both the NA and SI subscales, being categorised as Type D for the independent samples section of the study.

**Categorical Analysis**

As shown in Table 1, the mean scores for all measures of alcohol consumption were lower for the Type D group than the non-Type D group, suggesting that Type D individuals may consume less alcohol than non-Type D individuals. An independent *t*-test was used to compare Type Ds and non-Type Ds. The means were not significantly different for total volume of alcohol, *t* (284) = 0.30, *p* = .763 (two-tailed), drinking pattern, *t* (284) = 0.91, *p* = .366 (two-tailed), or number of days, *t* (284) = .30, *p* = 763 (two-tailed). An independent *t*-test was also used to compare the Type D and non-Type D groups on TPB variables. The only significant differences in TPB variables between the two groups were for PBC (*t* (284) = 3.16, *p* = .002).

**Table 1. Means (and standard deviations) for alcohol dimensions and TPB variables for the Non-Type D and Type D groups**

|  |  |  |
| --- | --- | --- |
|  | Non-Type D – Mean (SD) | Type D – Mean (SD) |
| Total units | 13.92 (SD=15.06) | 13.30 (SD=19.27) |
| Number of drinking days | 1.65 (SD=1.55) | 1.60 (SD=1.49) |
| Units on heaviest drinking days | 8.74 (SD=8.12) | 7.82 (SD=9.09) |
| Intention | 2.71 (SD=.88) | 2.57 (SD=.85) |
| Attitude | 3.33 (SD=.74) | 3.34 (SD=.581) |
| Subjective Norm | 2.59 (SD=1.07) | 2.74 (SD=.86) |
| Perceived behavioural control | 3.02 (SD=.861) | 2.67 (SD=1.00) |
| Susceptibility | 2.49 (SD=1.12) | 2.30 (SD=.92) |
| Severity | 2.71 (SD=.97) | 2.53 (SD=.86) |
| Anticipated affective reactions | 2.17 (SD=1.13) | 2.01 (SD=1.06) |

**Dimensional Analysis**

Type D was then assessed as a continuous variable using the NA x SI combination. As shown in Table 2, there were no relationships between Type D and total volume of alcohol, drinking pattern or number of drinking days. No correlations were observed between any of the TPB variables and alcohol use. In terms of TPB, there were no correlations between Type D and attitude, subjective norm or anticipated affective reactions. However, there were small, negative correlations between Type D and intention, PBC, susceptibility and severity, demonstrating that those who score higher on Type D measures have lower levels of intentions to look after their health, perceived control over the ability to look after their health, perceived susceptibility to health outcomes and perceived severity of performing unhealthy behaviours.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. NA x SI | - | .84\*\* | .81\*\* | -.02 | .01 | -.04 | -.20\*\* | -.03 | .08 | -.35\*\* | -.16\*\* | -.16\*\* | .03 |
| 1. NA |  | - | .45\*\* | .03 | .03 | -.01 | -.13\* | -.04 | .05 | -.29\*\* | -.13\* | -.14\* | -.03 |
| 1. SI |  |  | - | -.08 | -.03 | -.10 | -20\*\* | -.00 | .05 | -.28\*\* | -.12\* | -.11 | .06 |
| 1. Total units |  |  |  | - | .71\*\* | .83\*\* | -.05 | -.01 | -.01 | -.06 | -.03 | .00 | .07 |
| 1. Number of days |  |  |  |  | - | .48\*\* | .01 | .02 | .00 | -.11 | -.07 | -.04 | -.05 |
| 1. Drinking pattern |  |  |  |  |  | - | .00 | -.01 | -.03 | .02 | -.02 | .00 | .02 |
| 1. Intention |  |  |  |  |  |  | - | .48\*\* | .15\* | .40\*\* | -.03 | -.04 | -.38\*\* |
| 1. Attitude |  |  |  |  |  |  |  | - | .31\*\* | .24\*\* | -.04 | .05 | -.07 |
| 1. Subjective norm |  |  |  |  |  |  |  |  | - | .07 | -.17\*\* | -.08 | -.07 |
| 1. PBC |  |  |  |  |  |  |  |  |  | - | .19\*\* | .29\*\* | -.04 |
| 1. Severity |  |  |  |  |  |  |  |  |  |  | - | .54\*\* | .39\*\* |
| 1. Susceptibility |  |  |  |  |  |  |  |  |  |  |  | - | .43\*\* |
| 1. AAR |  |  |  |  |  |  |  |  |  |  |  |  | - |

**Table 2: Correlations of variables**

NA: negative affect; SI: social inhibition; PBC: perceived behavioural control; AAR: anticipated affective reactions.

\*p < 0.05; \*\*p<0.01.

N=286.

Regressions were then performed to test which significant TPB components were predicted by Type D. Demographic variables of age and gender were entered into the first step of each analysis and explained 0.5% of the variance in PBC (F(2, 282) = 0.69, p = .502) and 0.4% of the variance in intention (F(2, 281) = 1.62, p = .201), severity (F(2, 282) = 1.61, p = .202), and susceptibility (F(2, 282) = 0.57, p = .565), meaning that age and gender variables had no significant effect on predicting TPB variables.

NA and SI were then entered as separate variables in the second step of the analysis. These significantly increased the amount of variance in PBC (R² change = 0.113; F(2, 280) = 17.98, p < .001). Both NA (t(280) = -3.06, p = .002) and SI (t(280) = -3.19, p = .002) were significant predictors of PBC, with SI having slightly more impact than NA. Overall, the components of Type D contributed to a combined 11.3% of the variance in PBC. During this step, NA and SI also significantly increased the amount of variance in intention (R² change = 0.041; F(2, 279) = 5.99, p = .003). However, only SI, t(279) = -2.53, p = .012, had significantly predicted intention, while NA, t(279) = -0.94, p = .346, did not. Overall, SI contributed to an additional 4.1% of the variance in intention. NA and SI did not significantly increase the amount of variance in severity (R² change = 0.019; F(2, 280) = 2.72, p = .068). Neither SI, t(280) = -0.94, p = .349, or NA, t(280) = -1.47, p = .143, predicted perceptions of severity. Overall, the variables accounted for an additional 1.6% of the variance in severity, but this was non-significant. The second step of NA and SI also did not significantly increase the amount of variance in susceptibility (R² change = 0.021; F(2, 280) = 3.00, p = .052). Neither SI, t(280) = -1.30, p = .196, or NA, t(280) = -1.25, p = .212, predicted perceptions of susceptibility. Overall, they accounted for an additional 2.1% of the variance, but again this was non-significant.

Lastly, NA x SI was entered into the third step of the analysis. This had no significance impact on the amount of variance in PBC (R² change = 0.008; F(1, 279) = 2.54, p = .112) that was not already accounted for by NA and SI individually. NA x SI had no relationship with PBC, t(279) = -1.60, p = .112. There was also no significance impact on the amount of variance in intention (R² change = 0.002; F(1, 278) = 0.67, p = .414) that was not already accounted for by SI. NA x SI had no relationship with intention, t(279) = -0.82, p = .112. Finally, this step had no significance impact on the amount of variance in severity (R² change = 0.007; F(1, 279) = 1.90, p = .169) or susceptibility (R² change = 0.005; F(1, 279) = 1.49, p = .224). NA x SI had no relationship with severity, t(279) = -1.38, p = .169, or susceptibility, t(279) = -1.22, p = .224.

**Overall findings**

When examined categorically, there were no significant differences in any of the three dimensions of alcohol consumption for the Type D and non-Type D group. Significant differences were found for PBC between the Type D and non-Type D group. When examined as a dimensional construct, there were no correlations between the alcohol dimensions and each NA, SI and NA x SI. No correlations were found between any of the drinking dimensions and any of the TPB constructs. Although no correlations were found between Type D as a continuous variable and attitudes, subjective norms and anticipated affective reactions, small negative correlations were found between Type D and intention, PBC, severity and susceptibility. Hierarchical regressions showed that individually NA and SI predicted PBC, accounting for 11.3% of the variance in PBC. The only significant predictor of intention was SI, accounting for 4.1% of the overall variance. NA, SI and NA x SI were all non-significant predictors for both severity and susceptibility.

**Discussion**

The aims of the study were to investigate differences in alcohol consumption between Type D and non-Type D individuals and to examine any correlations between Type D, alcohol use and TPB. Furthermore, the study aimed to investigate whether TPB predicted alcohol consumption and Type D predicted TPB, and to examine any mediating effects of TPB on relationship between Type D and alcohol consumption. No significant differences were found in any of the alcohol dimensions between Type D and non-Type D individuals using the categorical approach. There was no relationship between Type D as a dimensional variable and alcohol use. There were also no relationships between alcohol use and TPB.Negative relationships were found between Type D and several TPB components, namely intention, PBC, severity and susceptibility. This suggests that Type D individuals have lower levels of intention to look after their health, perceived control over their ability to look after their health, and perceived lower severity and susceptibility over health outcomes.Subsequent regression analysis found that the individual components of NA and SI accounted for 11.3% of the variance in PBC, that SI accounted for 4.1% of the variance in intention, and that NA, SI and NA x SI were all non-significant predictors for both severity and susceptibility.

The present study suggested that there is no relationship between Type D and alcohol consumption. This conflicts with previous research which equally has linked Type D personality to both higher levels of alcohol consumption and problematic drinking patterns (Bhochhibhoya et al., 2015; Bruce et al., 2012; Michal et al., 2011; Ginting et al., 2016) and lower levels of drinking (Mommersteeg et al., 2010; van Bon-Martens et al., 2012; Hausteiner et al., 2010). However, the lack of a relationship between any of the alcohol variables and the individual components of NA and SI is particularly striking. Given that research has shown that major motives for drinking alcohol include reducing negative affect (Salemink, van Lier, Meeus, Raaijmakers, & Wiers, 2015; Cooper, Frone, Russell, & Mudar, 1995; Kuntsche, Knibbe, Gmel, & Engels, 2006) and drinking to fit in and reduce social inhibition (Bruce et al., 2012), some relationship would have been expected between NA/SI and alcohol consumption. Furthermore, considering neuroticism and negative affect are strongly related, with neuroticism representing average negative affect across time (Miller, Vachon, & Lynam, 2009), and research has shown neuroticism is linked to higher levels of alcohol consumption (Malouff et al., 2007; Kotov et al., 2010), this further adds to the expectation that NA would be related to alcohol consumption. Lastly, the well-documented link between alcohol consumption and extraversion (e.g. Cook et al., 1998), which is negatively correlated with social inhibition (De Fruyt & Denollet, 2002) also suggests there should be a relationship between SI and some dimension of alcohol use. Given the lack of relationship between alcohol consumption and NA, SI and Type D (NA x SI), perhaps the results may have conflicted with previous research due to methodological problems with the study design, which will be discussed later on, and these methodological issues led to unrepresentative results.

The current research found no link between alcohol consumption and TPB. This conflicts with previous research which found that both previous drinking behaviour and intention to drink were related to attitudes, subjective norm and PBC (e.g. Conner & Norman, 1996**).** Additionally, the finding that PBC was unrelated to alcohol consumption is also surprising considering research has linked PBC to both drinking intentions (Norman, Bennett, & Lewis, 1998; Johnson & White, 2010; Schlegel et al., 1992) and self-reported alcohol use (Armitage et al., 1999). One study found that although PBC was strongly related to intention, the only direct predictor of alcohol consumption (measured by “how often did you use alcohol in the last week?” from never to frequently) was intention (Armitage et al., 1999). This suggested that TPB may have limited efficacy when looking at alcohol use, and thus the current findings may reflect this limited utility. However, the study by Armitage et al. (1999) asked about intention to drink, whereas the current study asking about intention to look after one’s health, which appeared to be unrelated to alcohol consumption. The findings may suggest that participants did not consider alcohol consumption to have negative health impacts. Participants may have intended to look after their health in some respects (e.g. by exercising regularly or eating healthily) but perhaps not considered alcohol consumption to be integral to their overall perception of health. This could be explained by Cognitive Dissonance Theory (Festinger, 1957). Cognitive Dissonance states that when individuals engage in unhealthy behaviours which they know to be physically damaging, they will either change the behaviour, their cognitions towards the behaviour or experience a high degree of tension resulting from the inconsistency between cognitions and behaviour. Therefore, individuals may change their beliefs about the harmful effects of alcohol use meaning it does not tie in to their overall perception of health, and thus general intention to look after health would not predict drinking behaviours. However, the fact that the TPB measures used referred to general health behaviours (e.g. “I intend to look after my health over the next 2 weeks”) rather than specific drinking behaviour (e.g. “I intend to drink alcohol over the next 2 weeks”) is something that could easily be rectified in future studies, and measures which specifically assess attitudes, subjective norms and perceived control over alcohol use may find greater relationships with alcohol consumption.

Alternatively, some of the inconsistencies in research findings may also be explained by looking at the gap between intentions and behaviour. Inter-correlations between TPB components showed attitudes, subjective norms and perceived control over health behaviours were related to intentions to look after health but these intentions did not translate over into actual drinking behaviour. A lack of implementation intentions may explain why intention did not predict behaviour in the context of alcohol use (Gollwitzer & Sheeran, 2006), suggesting that researchers may have had to specify the conditions that would be needed in order to behave healthily, in order for participants’ intention to translate into actual behaviour. In this case, the link between intention and behaviour was not made because the TPB measures asked about general intentions to look after health and not with regards to drinking behaviour. In addition, some studies have found that behaviour is more strongly predicted by belief (Araújo-Soares, Rodrigues, Presseau, & Sniehotta, 2013; Conner et al., 2013), motivational measures including identity, self-determination and anticipated regret (Conner & Armitage, 1998) and self-regulatory measures including planning (Carraro & Gaudreau, 2013) than intention. This further supports the idea that the intention-behaviour link is not as robust as TPB may suggest.

An additional finding of the current research was the presence of negative relationships between Type D and several TPB components: intention, PBC, severity and susceptibility.

Furthermore, regressions showed that NA and SI predicted PBC, and SI predicted differences in intention. The finding that Type D is negatively associated with PBC fits in with research suggesting that the presence of Type D is associated with lower levels of self-efficacy (Wiencierz & Williams, 2016; Molloy et al., 2012; Wu, Song, & Moser, 2015), which is a component of PBC. However, there is a lack of established literature to compare the findings about SI predicting intention, given that no previous research has looked at Type D in relation to TPB. Nonetheless, research suggests that individuals who are higher in SI are also higher in neuroticism and are more likely to report somatic complaints (de Fruyt & Denollet, 2002), with neuroticism being linked to exaggerated health concerns (Costa & McCrae, 1985) leading to a greater intention to look after their health. Regression analysis revealed that PBC was the only TPB variable which was predicted by both NA and SI. Despite initial correlational analysis suggesting significant relationships between the dimensional Type D (NA x SI) and PBC, regression analysis found that it was the individual components of NA and SI which predicted PBC and the NA x SI combination did not significantly add anything to the predictive utility of the model. This is an interesting finding when considering previous research which found that it was NA and SI which independently predicted health outcomes and not the interactive combination of the two (Stevenson & Williams, 2013; Coyne et al., 2011; Grande et al., 2011; Williams et al., 2012). This further adds to the notion that Type D has limited utility when analysed as a dimensional construct, and that it may be NA and SI individually which affect health outcomes rather than the synergistic combination of the two.

One of the major limitations of the current study is the efficacy of the TFLB in accurately measuring alcohol consumption. Given that the structure of the questionnaire records only alcohol usage over the past seven days, this may not accurately represent alcohol usage over the course of weeks or months. For example, participants may have celebrated their birthday within the seven days prior and thus, the recorded alcohol use may not be representative of their average alcohol consumption over seven days. Furthermore, the time of year at which data was collected may have impacted the results. Data collection took place during October, which is a popular month to partake in the charity raising “Sober for October” in which individuals abstain from drinking for the purpose of raising money for charity, and thus this could have produced unrepresentative results. Moreover, the TLFB is ordinarily administered in person while the current study used an online version. Considering there were a number of incomplete or nonsensical responses which were unable to be used, if conducted in person, participants would have been able to ask the researcher for clarification in order to provide accurate responses. These methodological issues may help to explain why there was no relationship between alcohol consumption and each NA, SI and continuous Type D, and between alcohol consumption and any of the TPB variables. Future research should conduct the TLFB in person to ensure more accurate responses and could use an extended version of the TLFB which collects alcohol data over a longer period of time, such as 30 days, in order to more accurately portray average drinking volumes and patterns.

A further limitation is that issues around sampling may have biased the results. Firstly, the uneven male to female ratio (33.3% male) could have led to an unrepresentative measure of alcohol consumption within the sample. Previous studies have found Type D women consume less alcohol but there was no effect for men (Hausteiner et al., 2010). Furthermore, Cheng & Furnham (2013) found higher levels of binge drinking in men (22% in men, 9.8% in women), supporting the idea that there are gender differences in alcohol consumption and patterns of drinking. In addition, it must be noted the high prevalence of Type D individuals in the current study (51.0%) is far higher than estimates in the general population which range from 21-32% (Beutel et al., 2012; Denollet, 2005; Svansdottir et al., 2012; Grande, et al., 2004), suggesting that the current study may have an unusually high proportion of Type D individuals and thus the findings may not be generalisable to the wider population. Future studies should aim to use a balanced gender sample. In addition, a larger sample size may provide a sample with a more accurate proportion of Type D individuals. However, much previous research which has used the DS14 was conducted in person, so perhaps the influence of the researcher being present led to participants giving more socially desirable answers and the fact that the current study administered online led to more honest answers.

To conclude, the current study found no link between alcohol consumption and Type D, both categorically and dimensionally. However, no relationships being observed between alcohol consumption/TPB and NA/SI suggests there may be issues around the measurement of alcohol in the current study. Regression analysis into correlations between Type D and TPB components provided some useful insights in terms of Type D as a construct. PBC was predicted by the individual components of NA and SI but the synergistic effect of the two added no predictive utility to the model. Intention was also predicted by SI. Overall, this study suggested that there is no relationship between Type D and alcohol use, although future research should ensure alcohol consumption is accurately recorded. The study also suggests that Type D may have limited utility when analysed as a dimensional construct, as the individual components of NA and SI had an effect on TPB components, and not the synergistic effect of the two in combination. Future work should continue to analyse data using both the categorical and dimensional measures of Type D to provide more insights into the utility of Type D as a construct. The real-world implications of a better understanding of the utility of Type D as a construct may lead to the development of better interventions for the specific health outcomes predicted by Type D.

**Ethical Reflection**

The current study examined Type D personality, alcohol consumption and the Theory of Planned Behaviour variables. Ethical issues may have arisen in relation to each of the measures listed.

First and foremost, the exclusion criteria of being a non-drinker could have had negative effects on individuals before the study even took place. Given that non-drinkers were not allowed to take part, this has ethical implications depending on the reason for alcohol abstention. Individuals who choose to abstain from drinking for religious or health reasons may have found the exclusion criteria brought their identity as a non-drinker to the forefront and caused them to suffer negative consequence such as fear of exclusion or rejection from peers. However, given the nature of the study, researchers indirectly had to discriminate against individuals from religions prohibiting alcohol. Furthermore, being excluded on the basis of being a non-drinker may have acted as a harmful trigger for individuals who abstain from alcohol use due to previous addictions or problems with alcohol dependency. Given the design of the current study there was no way to provide support for individuals who did not meet the inclusion criteria.

A second consideration arises from the fact that the current study looked at Type D personality may have caused Type D individuals to become aware of their potentially unhealthy personality type, and this could have caused undue distress. Additionally, participants being asked to record the amount of alcohol they had consumed over the past week may have made them more aware of their alcohol consumption and thus they may have experienced feelings of concern. However, the debrief form reassured participants that if they felt affected by any of the measures, they could consult the University of Strathclyde Counselling Services, Samaritans or the Drink Aware website, meaning that participants were directed to appropriate services if they did experience distress or concern. They were also told they could contact the researchers if they had any further queries about anything contained in the study.

Lastly, the Theory of Planned Behaviour questions which is designed to tap into cognitions such as attitudes, subjective norms and perceived control may have tapped into cognitions which participants found alarming. For example, the questions could have caused participants to reflect on aspects such as perceived behavioural control, which may have caused them distress in the realisation that they have less control over their own behaviour than was previously thought, and this could have undermined their confidence that their behaviour was volitional. However, by keeping the Theory of Planned Behaviour measures general and not referring directly to alcohol use, this means that any reflection over perceived behavioural control would have been in relation to general health outcomes and not specific negative outcomes, such as alcohol use. This means that participants attention would’ve been directed to overall health, rather than to reflect on the negative health behaviours (like alcohol consumption) which can cause additional stress and alarm.

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**Appendix 1: Participant Information Sheet**

**Participant Information Sheet**

**Name of school: School of Psychological Sciences and Health  
Title of the study: The Relationship between Personality and Health Behaviours**

**Introduction**

This study is run by final year Psychology students at University of Strathclyde, Fiona Hanley and Katie Hendry. Please find our contact details below. It is being conducted to collect data for our final year dissertations.

**What is the purpose of this investigation?**

The aim of this study is to investigate whether there is a relationship between personality traits and health behaviours (exercise and alcohol consumption). Previous research in this area has highlighted that certain personality traits are associated with engaging in risky health behaviours such as binge drinking, lack of exercise, poor diet and drug abuse. Therefore, the researchers have chosen to investigate alcohol consumption and physical exercise to see how the two forms of behaviour relate to personality. In addition, the study seeks to explain why individuals with certain personality traits are more inclined to behave in such ways.

**Do you have to take part?**

The study consists of a four-part questionnaire investigating personality and health behaviours. You do not have to take part in this study. It is your decision whether you wish to take part and if, during the questionnaire, you wish to withdraw, you can do so without detriment. However, please note that once you have completed the questionnaire, you will be unable to withdraw as the study is anonymous and we have no way of identifying your responses.

**What will you do in the project?**

You will be asked to complete a four-part questionnaire, two sections dedicated to personality and planned behaviour, and the other two sections investigating health behaviours such as exercise and alcohol consumption. If you are an undergraduate psychology student, you may obtain credits towards your class for taking part. You will complete the questionnaire in your own time, in your own chosen place and return to either of the researchers when completed. It should take no more than 30 minutes to complete.

**Why have you been invited to take part?**

You have been invited to take part in this study because you are above the age of 18 and you were available at the time of selection.

**What are the potential risks to you in taking part?**

There are no direct risks associated with taking part in this study. However, if you feel affected by any of the questions asked regarding measures of personality, alcohol consumption or physical exercise, the University of Strathclyde has excellent counselling services which can be contacted by phone (0141 548 3510) or by email ([student-counselling@strath.ac.uk](mailto:student-counselling@strath.ac.uk)). Alternatively, if you are not a student of the University, you can contact the Samaritans on 116 123.

**What happens to the information in the project?**

The responses you give to the questionnaire items will be kept anonymous and will not be disclosed elsewhere. However, the data obtained will be analysed for the purpose of writing a dissertation report and there is a possibility it will be published in scientific journals.

The University of Strathclyde is registered with the Information Commissioner’s Office who implements the Data Protection Act 1998. All personal data on participants will be processed in accordance with the provisions of the Data Protection Act 1998.

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

**What happens next?**

If you are happy to participate in the study, you will be ask to sign a consent form confirming this. If you do not wish to participate in the project, you can still withdraw at this time and there will be no negative repercussions. However, once you have completed the questionnaire it will not be possible to withdraw your data as the study is fully anonymous, meaning that there is no way to identify your responses.

If you would like to receive the results of this experiment, please feel free to contact us. Our details are provided below. Again, there is the possibility the results of this study will be published in a scientific journal but it is fully anonymous.

**Researcher Contact Details:**

Fiona Hanley, email: [fiona.hanley.2014@uni.strath.ac.uk](mailto:fiona.hanley.2014@uni.strath.ac.uk)

Katie Hendry, email: [katie.hendry.2014@uni.strath.ac.uk](mailto:katie.hendry.2014@uni.strath.ac.uk)

**Supervisor Details:**

Dr Lynn Williams

School of Psychological Sciences & Health

University of Strathclyde

Graham Hills Building, Room GH651

40 George Street

Glasgow, G1 1QE

This investigation was granted ethical approval by the School of Psychological Sciences and Health ethics committee.

If you have any questions/concerns, during or after the investigation, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Dr Diane Dixon

(Convener of the Ethics Committee)  
School of Psychological Sciences and Health  
University of Strathclyde  
Graham Hills Building  
40 George Street  
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Email: [d.dixon@strath.ac.uk](mailto:d.dixon@strath.ac.uk)

**Appendix 2: Consent Form**

**Consent Form**

**Name of school: School of Psychological Sciences and Health**

**Title of the study: The Relationship between Personality and Risky Health Behaviours**

• I confirm that I have read and understood the information sheet for the above project and the researcher has answered any queries to my satisfaction.   
  
• I understand that my participation is voluntary and that I am free to withdraw from the study at any time before I have completed all measures, without having to give a reason and without any consequences.   
  
• I understand that because the study is anonymous, I can only withdraw my data up until I have completed the study.   
  
• I understand that any information recorded in the investigation will remain confidential and no information that identifies me will be made publicly available.   
  
• I consent to being a participant in the project   
  
  
  
(PRINT NAME) Hereby agree to take part in the above project

Signature of Participant: Date

**Appendix 3: Type D Personality Scale (DS14)**

**Type D Personality Scale**

Below are a number of statements that people often use to describe themselves. Please read each statement and then select the appropriate number next to the statement to indicate your answer. There are no right or wrong answers. Your own impression is the only thing that matters.

0=FALSE 1=RATHER FALSE 2=NEUTRAL 3=RATHER TRUE 4=TRUE

1. I make contact easily when I meet people 0 1 2 3 4

2. I often make a fuss about unimportant things 0 1 2 3 4

3. I often talk to strangers 0 1 2 3 4

4. I often feel unhappy 0 1 2 3 4

5. I am often irritated 0 1 2 3 4

6. I often feel inhibited in social interactions 0 1 2 3 4

7. I take a gloomy view of things 0 1 2 3 4

8. I find it hard to start a conversation 0 1 2 3 4

9. I am often in a bad mood 0 1 2 3 4

10. I am a closed kind of person 0 1 2 3 4

11. I would rather keep other people at a distance 0 1 2 3 4

12. I often find myself worrying about something 0 1 2 3 4

13. I am often down in the dumps 0 1 2 3 4

14. When socializing, I don’t find the right things

to talk about 0 1 2 3 4

**Appendix 4: Theory of Planned Behaviour Measures**

**Theory of Planned Behaviour Measures**

Below are a number of statements that people often use to describe themselves. Please read each statement and then select the appropriate number next to the statement to indicate your answer. There are no right or wrong answers. Your own impression is the only thing that matters.

0=STRONGLY DISAGREE 1=DISAGREE 2=NEUTRAL 3=AGREE 4=STRONGLY AGREE

1. I intend to look after my health in the next 2 weeks (intention) 0 1 2 3 4

2. I think that looking after my health over the next 2 weeks would be a good thing (attitude) 0 1 2 3 4

3. Other people who are important to me think that I should look after my health in the next 2 weeks (subjective norm) 0 1 2 3 4

4. If I wanted to, it would be easy for me to look after my health in the next 2 weeks (perceived behavioural control) 0 1 2 3 4

5. I do not think I am likely to suffer problems if I do not look after my health in the next 2 weeks (susceptibility) 0 1 2 3 4

6. The problems associated with me not looking after my health over the next 2 weeks would be minor (severity) 0 1 2 3 4

7. I think that I would feel concerned if I do not look after my health over the next 2 weeks (anticipated affective reactions) 0 1 2 3 4

8. I have a strong desire to look after my health in the next two weeks (intention 2) 0 1 2 3 4

**Appendix 5: Timeline Followback Measure for Alcohol Consumption**

**Timeline Followback Measure for Alcohol Consumption**

Below is a template of the last seven days. For each day, please provide details of alcohol consumption. There are no right or wrong answers. Your own impression is the only thing that matters.

**Today**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**Yesterday**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**2 days ago**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**3 days ago**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**4 days ago**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**5 days ago**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**6 days ago**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

**7 days ago**

Number of alcoholic drinks:

**Drink #1**

Type:

Brand name:

Size:

\*option to add more drinks\*

Was this a typical week’s consumption? YES/NO

**Appendix 6: Debrief Form**

**Participant Debrief Form**

**Title of Study: The Relationship between Type D Personality and Health Behaviours**

Thank you for participating in this study for our final year dissertations. The purpose of this study is to investigate whether there is a relationship between Type D personality (the combination of social inhibition and negative affect), and health behaviours. In addition, we want to see if our attitudes and beliefs about health might explain this relationship. Previous research has found that having a Type D personality has a negative impact on individuals’ health, e.g. individuals with Type D personality adhered less to physical activity norms, had a less varied diet and were less likely to restrict their fat intake. Similarly, a study conducted among university students found that those with Type D personality consumed more alcohol and were more likely to binge drink.

During this study you were asked to complete a four-section questionnaire looking at Type D personality, attitudes to health, alcohol consumption, and physical activity. If you feel affected by any of the questions asked please consult one of the following sources:

If you are a Strathclyde student: the University of Strathclyde Counselling Services which can be contacted by phone (0141 548 3510) or by email (student-counselling@strath.ac.uk). Alternatively, if you are not a student of the University, you can contact the Samaritans on 116 123. Or you can consult the Drink Aware web-site for advice on alcohol: https://www.drinkaware.co.uk/

If you would like to receive the results of this experiment, please feel free to contact us. Our details are provided below.

Researcher Contact Details: Fiona Hanley, email: fiona.hanley.2014@uni.strath.ac.uk Katie Hendry, email: katie.hendry.2014@uni.strath.ac.uk

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